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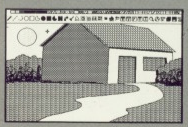

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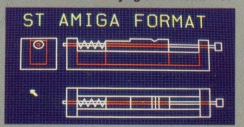

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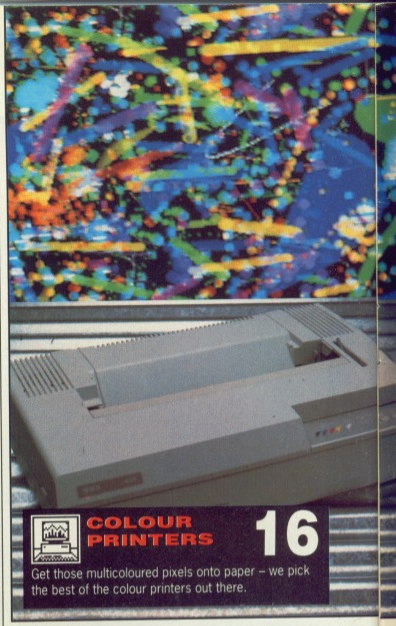

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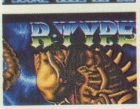

NICHE WORK

So it's 1989. At the end of every year since the machines were launched, it has become traditional for ST and Amiga magazines to run editorials saying how next year will see the *final* final breakthrough. So what does Format see in the twelve months ahead?

On the entertainment side, even though very few of the major chain stores are still selling 8-bitters, the price of the ST and Amiga still makes them machines you upgrade to rather than go for as a first-time buy. We predict that by Christmas '89 volume sales will allow the 520ST to sell at £199 and the Amiga A500 £299, or even £249.

In business, what has happened in the computer market in the last two years is the growth of a application-oriented culture. Rather than saying, "I need a computer", people are saying, "I need to do some desktop publishing". The ST and Amiga will dominate what are becoming known as the 'niche markets'. Consider the facts: the ST's mono monitor offers higher resolution that an Apple Macintosh; the Amiga's video chips offer better quality than almost any other graphics hardware under £10,000. And that's where the future lies – quite simply, no other computer on the market offers the value for money in desktop publishing, MIDI music making, video editing and similar specialist areas than the ST and Amiga do. You've only got to look at the number of DTP packages lined up for the ST (*Page Stream* and *Calamus* to name but two powerful contenders) and the range of video packages for the Amiga (like *Sculpt 4D* and ASP's sub-£100 Genlock) to see that the future is brighter than ever.

We're looking forward to 1989 – and don't forget, whatever your computing interests are, *ST Amiga Format* will be there with the first news and the first reviews. Happy new year!

Ben Taylor

Simon Williams

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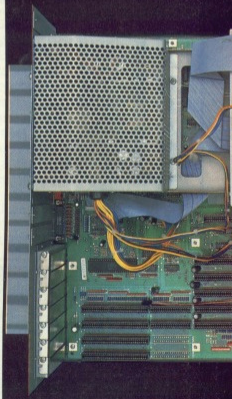

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- Commodore 68020 & transputer machines revealed
- UK Atari and Commodore shows boom
- Amiga BBC emulator
- Atari to sell Amiga software
- Workbench 1.3 on sale in USA

■ *The Amiga 2500 – 68020, 2Mb RAM, 68881 maths co-processor. A power user's machine at $4699.*

THE WRAPS COME OFF

TONY DENNIS joined the 1700 companies and 110,000 visitors in Las Vegas, where Atari's and Commodore's plans for 1989 were revealed at Comdex.

AMIGA 68020 LAUNCHED

After all Atari's and Commodore's talk of 68020 and 68030 plans, Commodore are the first to deliver the goods with a saleable product: the Amiga 2500.

The A2500 is an unashamed workstation for the power user. Aimed at the growing niche market of video professionals, it is based on the standard Amiga 2000, but includes extra hardware to satisfy the demands of processor-intensive graphics and animation programs.

The heart of the 2500 is a card with a 14 MHz Motorola 68020 microprocessor. A 68881 maths co-processor comes as standard, with 2Mb of fast 32-bit RAM and a 40Mb hard disk. Workbench 1.3 is all in the deal.

Commodore estimate that for graphics rendering work and other heavy number-crunching applications, the 2500 will run 400% faster than an A2000.

A further option is the Amiga 2500UX. Announced but not yet available even in the states, the UX will run a complete version of the popular Unix System V. With a promised 80Mb hard disk and 5Mb of RAM, there aren't going to be too many of those in WH Smith's January sales.

Commodore UK are not quoting availability dates over here.

LAPTOP ST – ALMOST

Question: when is a launch not a launch? Answer: when it's a laptop ST.

Atari were due to formally unveil their Laptop ST – code-named Stacy – to the world's press at the Comdex computer trade show in Las Vegas. However, in a farcical change of heart it wasn't actually displayed on the Atari stand.

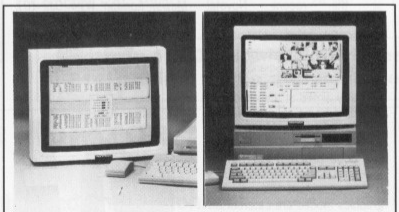
'NOW NEXT YEAR, WE'LL HIDE THE **STAND** AND SEE IF ANYONE CAN FIND US.'

After Les Player, Atari UK's technical director, had personally couriered the British-made portable ST over to Comdex, the US management decided against showing it. However, details leaked out, and the unit itself was kept in a back room where persistent journalists could catch a glimpse if they asked nicely.

Details of the ST Laptop are as follows: 1 Megabyte of memory; a backlit LCD screen with 640 by 400 resolution (which is compatible with Atari's SM124 monochrome ST monitor), and an internal double-sided (720K) disk drive with a second drive/hard disk option. The keyboard will be a full ST layout, but slightly rearranged with a built-in tracker ball for use in place of the ST's mouse. Physically, it is similar to the Toshiba T3100 portable PC. It's essentially a 1040 built with custom chips, and is fully software compatible with current STs. The MIDI port is there, and you can hook up an external monitor for desk use.

August Liguori, vice president operations at Atari (US) Corporation, said that he had felt unhappy about putting the prototype on the exhibition floor. He expected the machine to ship in the first half of '89.

The Laptop is apparently aimed at the business and music markets. The price will be somewhere between the $1,000 to $2,000 mark. UK sources believe that Atari top brass here have already set the price at £695.



An eyecatching display at Comdex was the Moniterm megascreens. Models are available for both ST and Amiga at $1995 each.

On the Amiga, resolution is 1008x800 pixels, in non-interlace mode, although standard Amiga low, medium and hi-res are also supported. The ST screen will allow your DTP package to display two facing A4 pages of text – a complete magazine double page spread. If you're into serious CAD or STP on either machine, these screens could be a lifesaver.

Transputer power

In one of a string of 'technological previews', Commodore demonstrated a transputer co-processor board for the Amiga 2000. (Layman's guide to PR-speak: technological preview means, "We've designed this thing on paper but we've no idea how we're going to manufacture it.")

Developed in West Germany, this is pitched directly against Atari's ATW (formerly the Abaq), and at the moment the specification reads almost identically. One Inmos T414 transputer (or optionally a T800) comes as standard, with the option to have up to 17 transputers delivering 170 million instructions per second. Watch out for the version of Starglider II on that one!

The surprise is that Commodore's transputer will be running Helios, the transputer operating system developed for Atari by Perihelion in the UK. No price has yet been announced.

And speaking of the Atari Transputer Workstation, a spokesperson claimed that its casing had been finalised, while an end user price of between £3,000 and £4,000 would depend on DRAM prices. It boasts 4 Mb of main RAM plus 1 Mb of video memory as well as the 512K in the adapted ST used as the controller.

Video age authoring

If Amiga users are into desktop video, what better than a word processor for the video age? *Viva* from Michtron is described as a 'Hypermedia authoring environment'. It claims to let you build up a presentation using the Amiga to control a range of devices such as VCRs and laser video players. The cost is $99.95.

There's a cut-down version, *Viva Presents!* at $49.95 for quick storyboarding, or there is the full *Viva Professional* at $599.95 which adds database and expert system functions to the basic product. Very impressive indeed. In fact at Comdex as a whole, new laser disk technology provided the most excitement.

■ *MichTron's UK agents are Microdeal, PO Box 68, St. Austell, , Cornwall PL25 4YB (0726 68020). Or call the States direct on 010 1 313 334 8726.*

Atari Show

The recent Atari Show at Alexandra Palace proved to be a mixed bag of nuts. Disappointing because Atari's new baby – the laptop ST – didn't make an appearance. And thrilling because of the outstanding number of new products from third party manufacturers.

It was supposed to be the great games show – with major software houses Ocean and US Gold hosting a software competition. Originally Database, who organised the show, gave US Gold and Ocean free stands to attend the show. Not surprisingly many other exhibitors who had paid for space complained, and Database were forced to withdraw their offer to Gold and Ocean. Consequently most of the amusement arcade was filled with Mandarin (Database's software arm) and Atari games.

New from Michtron/Microdeal are *Personal Finance Manager* (£29.95) – designed to help you look after your spending and boasting data ordered entries, auto balancing and graphic analysis – *Replay 4* sound sampler (£79.95) and *Talespin* adventure creator (£49.95). According to Microdeal games programmer Steve 'Goldrunner, Jupiter Probe, Leathernecks, etc, etc' Bak, *Fright Night* isn't coming out on the ST. The problem is that the game requires several huge sprites to be animated. The ST can't cope with this, so the game will only be released on the Amiga.

HiSoft announced several new packages. The two most likely to be seen on an ST screen in the near future are *Craft 2* (£99.95) and *Tempus 2* (£39.95). Craft is a development system based round a Unix-type shell and Tempus 2 is a super-fast text editor which allows you to invoke programming tools without leaving the editing environment. Next year expect to see HiSoft C, FORTH and KnifeST.

Supra hard drive distributor Frontier displayed a new book – *Everything You Need to Know Before Buying a Hard Disk Drive For Your Atari ST System.* (Volume 2 will be Everything You Need to Know Before Thinking Up A Snappy Book Title). It's packed with information on why you should buy a Supra drive and no other, of course.

New for MIDI enthusiasts is *MidiGrid* from (£134.55) CDP Ltd. This allows you to customise musical instruments on screen and play the results by clicking the mouse. The package lets you re-configure all or any of the notes on your keyboard to play a note, chord or an entire composition.

An ST show wouldn't be an ST show without the likes of smut-merchants, Anco. The latest offering is *Maria's Christmas Box.* And guess what the objective is? That's right, you've got to challenge Maria Whittaker to a game of not-so-challenging strip poker. It's gonna be a steamy white Christmas!

CONTACTS

MICHTRON/MICRODEAL, PO Box 68, ST Austell, Cornwall, PL25 4YB (0726 68020)
HISOFT, The Old School, Greenfield, Bedford, MK45 5DE (0225 718181)
FRONTIER, PO Box 113, Harrogate, North Yorkshire, HG2 0BE (0423-67140)
CDP, 11 Kilburn Rd, York, YO1 4DF

BBC EMULATOR AT COMMODORE SHOW

Commodore UK have taken their attack on the education market over the trench-tops with the Amiga BBC Emulator.

As the name suggests, the BBC Emulator (nicknamed the 'Beebulator') is a program to let the Amiga run BBC micro software. Developed by Ariadne Systems, Commodore hope that this will eliminate any final excuses schools may have for not buying Amigas.

Talking about the emulator at the recent Novotel Commodore show, Commodore's Education chief Peter Talbot said, "The Department of Education and Science has made it clear that any computer seriously aimed at the education market must be able to run BBC programs." He reckons that any 'legally written' BBC BASIC or m'c code program will run on the emulator – all the BBC's operating system *FX calls and graphics modes are catered for. The only fly in the ointment is that to transfer the program files you need a serial cable link at the moment – Commodore are working on interfacing BBC disk drives to Amigas for true file swapping.

The demonstration at the show was impressive – using the Amiga's fast maths libraries and Blitter chip, the emulator will run software up to seven times faster than a BBC in some cases. No games were demonstrated – presumably Elite on the BBC isn't written legally!

Price will be £49.99, or £39.99 to educational establishments.

■ *James Associates, Hazlitt Mews, London W14 OJZ (01-603 3313)*

■ ***Peter Talbot, Commodore's Education supremo, showing off the BBC Emulator.***

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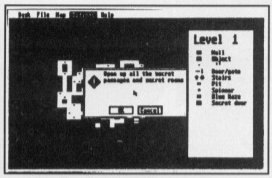

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Create shortcuts, new passages etc.
Open doors without keys!
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Available at the Atari User Show (25-27 Nov.) Stand G4/G5

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Driller	19.95	13.95
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Lancelot	19.95	13.95
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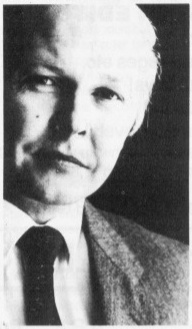
ATARI TO PUBLISH AMIGA SOFTWARE

Atari UK are planning a massive assault on the UK home software market in 1989 – not only for the ST, but titles for the Amiga are also included in the plans.

With a wealth of successful arcade games behind them, Atari



■ *Atari's Paul Welsh – commercial sense.*

expect to launch 24 ST titles over the next twelve months. It looks likely that a completely separate company will be set up – away from the usual centre of operations in Slough – to "put Atari up there with US Gold."

But the range won't just be games. The 'Hyper' label will be used to cover CAD, business and graphics applications (we reviewed *HyperPaint* last issue). The games sector has been split into three areas: arcade games, wargames and 'intellectual' games (*wot's one of them? – Ed.*)

The real surprise is that Atari are including the ST's arch-rival, the Amiga in their plans. At least nine Amiga titles are planned. Does this mean that Atari consider the Amiga a better games machine? "Of course we don't", said marketing director Paul Welsh. "We can port games across fairly easily, so it just makes commercial sense to maximise the return from each product."

So far planned are *Borodino* (wargames), *Go* and *Backgammon* (under the intellectual category) and *Star Raiders* for the arcade label.

On the business side, Atari have scooped the rights to the German desktop publishing package-*Calamus DTP*. This top-of-the-range package looks set to be the most powerful DTP on any micro – until recently it was to be marketed by Signa, but Atari managed to convince the Germans they would give it a better platform.

FIRST COLOUR DIGITISER

Until now, colour digitising on the Amiga has meant using a mono video camera and doing three scans – red, green and blue. At last SuperPic, from *Precision Software*, lets you directly grab frames from a colour camera.

SuperPic grabs images in a staggering 32,768 colours, and then performs a sophisticated optimisation process to convert down to the 4096 colour HAM mode. This takes about 15 seconds, so it certainly isn't real time.

All Amiga display formats are supported – and SuperPic comes with a high quality Genlock for interactive video work too. All this for £458.85 inclusive of VAT.

■ *Precision Distribution, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ (01-330 7166)*

Workbench 1.3 shipping in US

The much-delayed new version of the Amiga's operating system, Workbench 1.3, is finally on sale in the USA, and will be in the UK from mid-December.

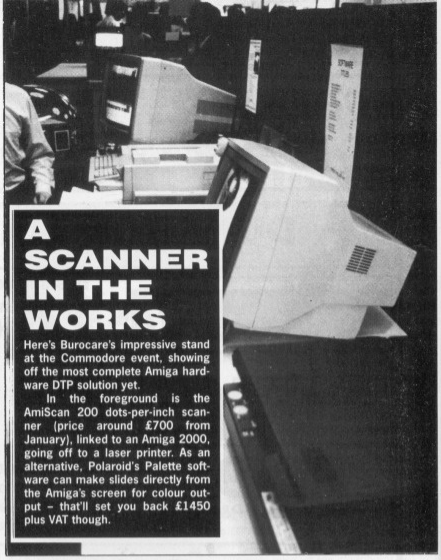
No we're not going to repeat the list of new features (see issues 1, 2, 3, etc, of *Format*), but the final price for the new Workbench disk is $29.95 in the States so UK users should expect to pay £19.95 or even less.

MONITORING TV

Bored with watching that old Amiga screen working its way through a BASIC program? Microtext have come up with a cunning adaptor to turn your monitor into a fully-fledged TV. Priced at £49.00, at the flick of a button you can switch from Deluxe Paint into Terry Wogan – hard to know which to choose, isn't it. The bad news? A colour TV licence costs more than the convertor.

Also available is a Teletext adaptor at £124.80.

■ *Microtext, 7 Birdlip Close, Horndean, Hants PO8 9PW (0705 595694)*



A SCANNER IN THE WORKS

Here's Burocare's impressive stand at the Commodore event, showing off the most complete Amiga hardware DTP solution yet.

In the foreground is the AmiScan 200 dots-per-inch scanner (price around £700 from January), linked to an Amiga 2000, going off to a laser printer. As an alternative, Polaroid's Palette software can make slides directly from the Amiga's screen for colour output – that'll set you back £1450 plus VAT though.

K-SPREAD ATTACK

Kuma are out for blood – the blood of VIP Professional to be exact. Having just let their power ST spreadsheet *K-Spread 3* loose on the market, Kuma are offering owners of their arch-rival package

the chance to convert to K-Spread 3 and K-Graph 3 by sending off £50 and the VIP master disks.

VIP Professional is currently being given away free with all sales of the 1040ST from Atari's main distributors SDL (see our review on page 64), together with Microsoft Write word processor and Superbase Personal database. Jon Day, Kuma's MD, is not entirely happy with the deal. "It makes you wonder whether Atari want to see any independent software developers at all," he commented.

■ *Kuma Computers, 12 Horseshoe Park, Pangbourne, Berks RG8 7JW (07357 4335)*

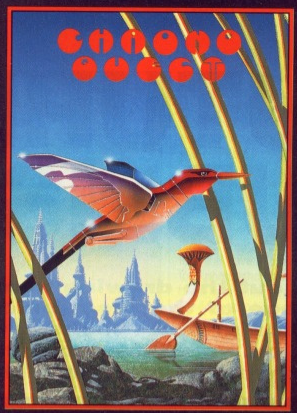
QUICKIES

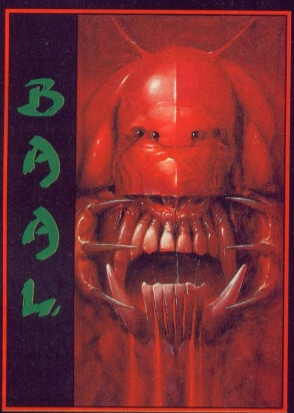
■ **CITIZEN have declared their intent to take the 3.5" floppy disk drive market by storm. They say they intend to increase production to 200,000 drives a month, and launch a 10Mb unit next year.**

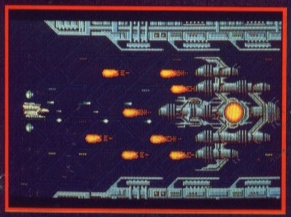
■ **HARD DISK users are spoilt for choice this month. For the Amiga, *Superback* from The Disc Company (contact HB Marketing or the Amiga Centre Scotland) provides you with a hard drive archiver for £52.95. And on the ST, Michtron (0726 68020) are offering *Toolkit* to boost your hard disk's access time by compacting the disk directory.**

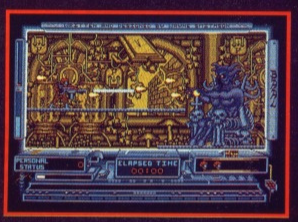
■ **FIRST WORD PLUS is now out in an improved version. Release 3 boasts keyboard shortcuts, proportional spacing support, upper/lower case conversion and large document support. Price £79.97 from Electric Distribution (0954 61258).**

■ **The SUPERBASE range has had a radical upgrade at Precision software (01-330 7166). Superbase Personal is now out in version 2 for ST and Amiga at £99.95, featuring a text editor for easier mail-merge applications. Superbase Professional is out in version 3 at £249.95, boasting a fully programmable communications facility.**









MENACE

This is a pure arcade game — a fast action packed journey through six very different worlds where lightning fast reflexes and furious fire button action are your only hope of survival.

Your mission orders are simple, you must destroy the planet Draconia. In theory possible, in practice . . .

The planet Draconia, an unnatural planet, has been formed over many centuries by six of the most feared rulers that have ever existed. These rulers, exiled from their home galaxy, have ravaged and plundered space, using the worlds they have destroyed and the life forms they have created to build this planet of fear and death.

Now an end must be put to their reign of terror. A large scale attack will prove too costly to our space fleets. Draconia has many orbiting defence systems, the sacrifice may be in thousands of lives. A single fighter craft, approaching undetected, may have a chance to avenge those who have perished, by destroying Draconia. You have that chance . . .

Screen Shots are from the Amiga version

AVAILABLE NOW ON THE PSYCLAPSE LABEL

CHRONO-QUEST

This is the first of a new generation of adventure games from Psygnosis. An adventure game in the classic sense.

Your quest begins in your fathers chateau circa 1920, there you find (or should find) your fathers latest invention; a fantastic time machine. Your father is dead, murdered, you are the prime suspect. A letter left by your father leads you to think the real culprit was Richard, his not so faithful servant. But he has escaped to the future using the time machine . . . who will believe your fantastic story . . . do you believe it?

You will be presented with many objectives; ultimately you will have to travel through time to collect the fragments of magnetic card to drive the Time Machine into the future. There you will have to . . . Meanwhile, the immediate objective is to find the time machine . . . Sorry, a more immediate objective is to find the room with the time machine in it. But its dark . . . Very sorry, an even more immediate objective is to be able to see where you are going . . . 3 hours and 250 minutes and even more immediate objectives later, you are standing in the hallway thinking . . . hellpppp!!!!

Screen Shots from the Atari ST version

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Can you succeed? There is no option . . . the alternative is literally 'Hell on Earth'.

Screen Shots from the Atari ST version

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PSYGNOSIS

FUTURES

FUTURE PUBLISHING

Throw out the drawing boards, galleys and glue – the age of the electronic journal has arrived. Periodicals and books are increasingly produced on computer screens. SIMON WILLIAMS drools over the machines that make it possible.

GRAPHIC TEXT, NOT TEXT GRAPHICS

When you type an 'a' character at the keyboard, a graphics-based micro (like an ST or Amiga) looks up the code the keyboard supplies in an internal table. It then displays the arrangement of dots representing an 'a' on the screen.

OCR software tries to do the reverse, by checking each arrangement of dots on a scanned screen and comparing it with sample characters in a table, to try and arrive at the corresponding character code. The recognised characters can then be saved in a text file for editing.

Eddy Shah sounded the bell for the start of the electronic publishing revolution when he first launched *The Warrington Messenger*. Since then, daily after daily has gone the same way. Computer systems now house pages from the majority of national newspapers, saving time and costs and allowing greater flexibility in layout. Things don't stop with page layout, though, as more and more colour processing and graphic design takes place at the VDU.

Desktop Publishing (DTP to its friends) really started life soon after the launch of machines like the Apple Macintosh, with the iconic, graphics-based environment we've all come to know and love. Once it was realised that text could be displayed on screen with an approximation of how it would appear when printed (What You See Is What You Get, or 'WYSIWYG') all kinds of packages sprang up to take advantage of the fact.

This technology was running in parallel with dedicated 'electronic publishing' systems, such as Atex, which had sprung up some time earlier and been used on 'serious' papers like *The New York Times*.

Stages of the page

There are three basic stages in the design and make up of an electronic page: the input of the text and graphics into the machine, the manipulation and lay out of the material once it has been entered, and the output of the completed page to paper or film. The technology of each of these aspects is advancing fast, giving more and more opportunity for exciting page design.

The obvious way of entering text into a computer is via the keyboard, but there is now a lot of interest in Optical Character Recognition (OCR) which can scan a page of type or print graphically and interpret the graphic shapes as characters. The text can then be treated in exactly the same way as keyboard-entered copy.

Scanners have been used for some time to enter graphics into computers. The most common type is the 'flat-bed' scanner, which looks much like a very small photocopier. The scanner's software can scan all or a section of an original and transfer the image, at 300 dpi or more, into a micro. Higher resolutions, which are really necessary for reproducing photographs, are now coming onto the market, as is software which can support grey scales. Different

■ ***A typical professional DTP system, less scanner, but including an A4 monitor.***

FORMAT OF THE FUTURE

ST Amiga Format **is produced, as are all magazines from Future Publishing, using DTP techniques from start to finish. The company was based around this idea from the start and as new magazine titles have been launched, so the amount and complexity of electronic page make-up has increased. Black and white pages are only reproduced on paper when the masters are created on a photo-typesetter (a very high resolution laser printer which prints on photographic film). These masters are then used directly by the printers to produce the pages of the magazine. Colour pages go through an extra stage in the production process to cope with transparencies such as screen shots, included in the page.**

Taking the whole process from the start, the text (known as the 'copy') of the magazine is written by staff writers in the office or freelance authors around the country. The copy is usually supplied on disk and loaded straight into an Amiga or ST to be sub-edited. This is where the copy is checked for accuracy and spelling, and where the 'formatting codes' are added. These codes represent pre-set styles and sizes of text used in the magazine, including headlines, straplines, crossheads, panel pieces and margin notes.

Once the copy has been formatted, it is run through a conversion program which translates the embedded codes into a form which can be understood by a professional DTP program, *Quark XPress* on the Apple Macintosh. It is transferred to the Mac via a serial link, using the Kermit communications protocol. Further adjustments are made to the copy within *XPress* to complete the process of sizing and adjusting it.

Format **uses a system of pre-defined 'page grids' which contain all the elements of a page and into which the various labelled sections of the copy are flowed. Headlines are dropped into headline boxes, product information into an information box and panel text, margin notes and body copy (the main text of an article, such as this) into their respective boxes in the grid.**

The next stage, still electronic, and with the copy still not having seen paper, is to lay out the page. This is done by our art team, again using *XPress* on more powerful, Macintosh II micros. Text can be shifted around, line graphics added and black boxes positioned where transparencies or photo prints will eventually appear. These pages are laser printed at 300 dpi, as proofs for the editorial team to check. They are then sent to a Linotronic 300 phototypesetter and printed at 1200 dpi.

Colour pages have to be 'originated'. This means constructing four colour films which can be combined together to produce a full-colour printed page. In the process any colour transparencies or prints have to be scanned to separate out their component colours (cyan, yellow, magenta and black). The finished films are then used to print the magazine pages.

The origination process, and particularly the scanning of colour images, is the next stage due for computerisation. It's now possible, though expensive, to scan a colour picture straight into a super-micro with suitable colour graphics circuitry. The picture can then be manipulated in the same way that text and black and white images can. The four colours can be separated electronically and the four films can be printed out on transparent film using the phototypesetter, saving one stage in the production process.

■ *Any colour picture in* Format *is made up from four films, supplying the cyan, magenta, yellow and black components of the image.*

shades of grey are very important in picture reproduction as they can simulate the variable size of dot screen used in conventional printing of photographs.

Colour scanners are also entering the market, so colour images can now be imported directly into DTP systems, but it comes very expensive. Colour scanners can be flat-bed or camera-based units, which effectively photograph the image in colour and digitise the result.

Other methods of importing graphics include digitising them from live scenes with a video camera, loading them into the page as clip art and drawing them in a graphics package and transferring them as image files.

The assembly line

Once the text and images have been collected together as disk files, they can be assembled on the page within the DTP program. Top flight DTPs can perform spellchecks on text, automatically hyphenate words between syllables and handle tints for boxes and graphics. They will also handle colour separations for spot colour (areas of one or more colour on a page, but not including full colour pictures).

■ *This page from the Robots feature in issue 3 was put together on our own DTP system.*

To display pages in the makeup process, normal display screens can be very limiting. Not only is their resolution too low, but the area of page they can display is insufficient to get a good feel for the overall layout. The solution, again an expensive one (£2000 plus), is to add a larger display screen. These are designed to display a full A4 page or a double A4 (A3) spread in one go. They are usually monochrome or grey scale monitors, but if you have £5000 to spare you can go for colour.

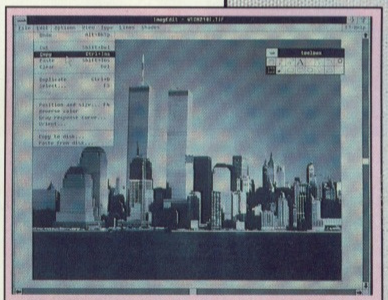
Getting it out

As things are at the moment, there's only one real option for high quality print in commercial quantities. You have to prepare a master on paper or film and have a plate or plates made for photo-lithographic printing. For black and white reproduction a laser based photo-typesetter can burn a high-resolution image (up to 2400 dpi) of the finished page onto photographic film.

For colour reproduction, you need to produce the four separate colour films on transparent material. The image is still in black on each film, but the burn represents the parts of the final composite picture which will appear in one of the four colours. This can also be done on a photo-typesetter.

Logical conclusion

Hardware and software continue to improve in the DTP arena. It's not possible to say when full colour documents, including photographs and all text and graphics will be available in one pass from an electronic publishing system, but hardware and software are advancing at such a rate that it could be only a matter of months.



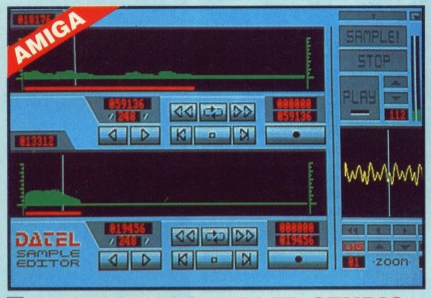
■ *This photographic quality image can be manipulated directly within a DTP package.*

■ *A Microtek flat-bed scanner, in toning tan and cream, can scan up to 256 grey shades at 300 dpi.*

TIPPING THE GREY SCALES

The cheapest form of screen display is the simple on/off one bit per pixel monochrome monitor. On this type of screen you can display black or white, nothing else. Next up the expense league is the grey scale monitor, which as the name suggests can display various intensities of grey. Top of the league is the colour monitor, though even these vary in cost with the number of shades they can show.

DATEL ELECTRONICS



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- Compatible with most leading Midi packages (including D/Music).
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A TRULY PROFESSIONAL MIDI PACKAGE AT A REALISTIC PRICE

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- Full dubbing - listen to one track while recording another.
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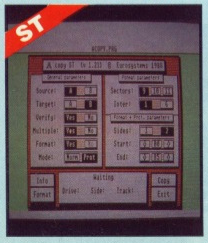

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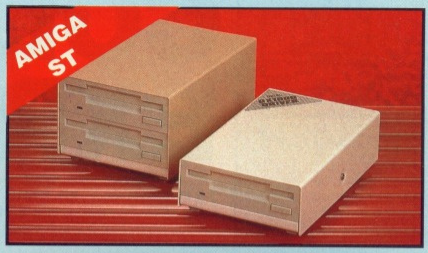

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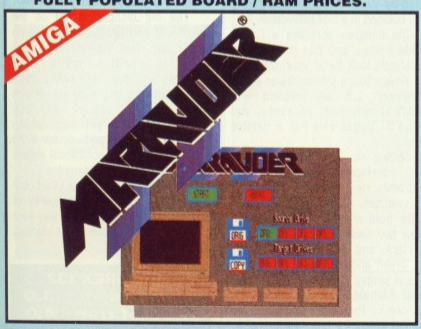

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REVIEW

COLOUR EXPLOSION

Would Michaelangelo have painted the Sistine Chapel in black and white? Would Leonardo da Vinci have created a monochrome Mona Lisa? No! BEN TAYLOR looks at four colour printers to do justice to your paint package.

Why have the ST and Amiga taken the leisure market by storm? In a word, colour. OK, so you've bought a paint package to squeeze every last pixel out of your screen – but once you've created your labour of love, what do you *do* with it? It's nice while it's on screen, but turn the power off and it's gone.

The answer: get a printout. We covered black-and-white printers in some detail last month, but who wants mono pictures? A colour printer is what you want, but the prices and performance of the models available varies wildly.

INTEGREX COLOURJET 132

Integrex ■ Church Gresley, Burton-on-Trent, Staffs DE11 9PT (0283 215432) rrp £677.35; buy direct

The Integrex is one of the cheapest inkjet printers on the market, and seems to have been adopted by Acorn's Archimedes as the preferred workhorse. It's a compact and light printer, which although looking a bit old-fashioned wouldn't over-clutter any desk.

Colours are made up from magenta, cyan and yellow jets, which means that it can produce those plus red, green and blue by mixing the inks, and black from a separate jet. Seven in total. Other colours are simulated by the standard 'dithering' process outlined in a box elsewhere.

■ *The Integrex 132*

The Integrex acts like a Canon 1080A printer, and that is the driver you should look for in your software. The Amiga has a Canon driver in the Workbench 1.3 set supplied with almost all new paint packages, and on the ST Degas Elite has a suitable driver.

Setting up is remarkably easy. The interface is a standard Centronics, and there are no fiddly DIP switches. A flap at ground level on the front of the unit flips down to reveal two sealed ink cartridges, one for black, and one combined for the red, green and blue inks. Fitting new ones is simply a matter of pulling the spent cartridge out and slotting a new one in. The colour cartridges are claimed to last for four million characters each:

The carriage is eight inches wide, and the friction-feed roller can cope with single sheets or a roll of paper. No special paper is required, although it's difficult to get thick sheets (heavier than standard 80 gram A4) through.

So to action. With a claimed 1280 dots per line on a 8" carriage, the best resolution should be 160 dots per inch. In practice, the printer's performance is limited by the quality of the software drivers on ST and Amiga. Neither will drive the printer at greater than 80 dots per inch, half resolution, which is a pity. Integrex say there is some work being done on better drivers, but these are some way off yet.

Colour print quality is generally quick and clear. Solid colours come out evenly, and printing a full screen picture took 3½ minutes on an Amiga and 5½ on an ST. The Amiga driver produced good quality results, but the Degas one disappointed. Shadowy areas lacked any black ink,

The big disappointment on the Integrex is text handling. There is no NLQ mode, and the characters are built on a 5 by 8 dot matrix, which look very primitive. With only 8 dots, the descenders of j, p, g etc. do not come down far enough, and look ungainly. You can get italic, underlined, condensed and double-width text, but even for occasional letters you would need another printer.

Overall, a nice cheap inkjet, but let down by the present quality of printer drivers. Don't throw away your black-and-white printer for letters either.

INTEGREX 132	
features	3.0
ease of use	4.0
speed	3.5
colour	4.0
format value	4.0

HP PAINTJET

Hewlett Packard ■ King Street Lane, Winnersh, Wokingham, Berks RG11 5AR (0734 784774)

ST COLOURS

On the ST's Control Panel menu (you'll see it under the Desk menu if you start up with your 'Language' disk) you can apparently choose colour or black and white output for (Alternate)+(Help) screen dumps. Don't be fooled – this doesn't seem to work with many current colour printers, and not even Atari are certain what it's for – the Okimate 20, they think, but they've never tried it. In general, the ST leaves printing to individual programs to worry about, so to check whether your intended printer will work with your paint package, check with the manufacturers.

▲ *The test image in 4096 colours – printed results are on the right.*

rrp £1144.25; best buy price £850

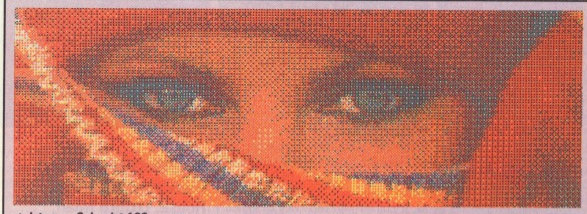
Hewlett Packard are rapidly becoming the inkjet printer specialists, both in colour and mono. Their *Deskjet* can offer laser printer quality at half the price, and the *Paintjet* is its polychromatic sibling.

A suitable driver for the Amiga is only available with Workbench 1.3, but all the latest paint packages such as Photon Paint come with those drivers already. Unfortunately the ST (in the shape of Degas Elite) doesn't directly cater for the Paintjet – although Electronic Arts say you can obtain a suitable driver by logging on to the American Compuserve bulletin board (!).

Physically, it's a the lightest and most compact inkjet reviewed, explained by the fact that the power supply is a separate unit. The roller is unusually narrow, and will only just take A4 paper. Both friction and tractor feed are provided.

As with the Integrex, there are two ink cartridges – one for black, and another for the magenta, cyan and yellow inks combined. Replacing these is quick and clean. The On/Off switch is a front panel touch-switch, not the traditional rocker, and there is no on-line/off-line option. You just plug in and go. An annoying design niggle is the lack of a paper tear-off bar, useful for continuous stationery.

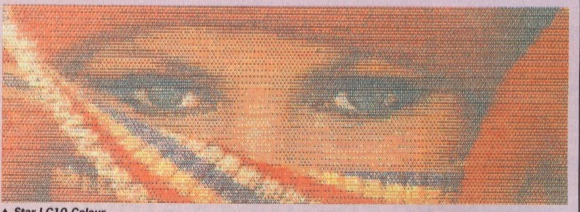
The Paintjet can print graphics at either 90 or 180 dots per inch, and the Amiga supports the higher resolution. Our test picture was the classic 4096 colour HAM mode girl-in-wool-



▲ *Integrex Colourjet 132*

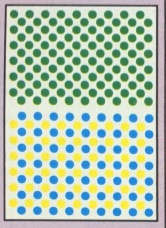
▲ *Hewlett Packard Paintjet*

▲ *Xerox 4020*



▲ *Star LC10-Colour*

DITHERING ABOUT



Computer screens can display many different colours (512 on the ST, 4096 on the Amiga), but printers usually only have a few colours. So how can they reproduce the full range of screen shades?

The answer lies in primary school physics. Look at the two squares in this box. One is printed in green, the other is made up of blue and yellow circles. Prop the magazine up and look at it from the other side of the room, and both will appear to be the same solid colour.

This technique, of creating a new colour by mixing dots of two others, is called 'dithering'. If the printer driver is a good one, then a wide variety of colours can be simulated this way – even with a three-colour ribbon, you can mix a blue and a yellow dot for mid-green, two blues and a yellow for dark green or a blue and two yellows for light green. You get the idea. Printers usually have a much higher resolution than the screen (maybe twice as many dots per inch), so you can dither several printer dots together in the space of one screen pixel.

How effective the dithering is varies with the printing mechanism used. Coloured cloth ribbon printers are bad at dithering because the dots don't mix very well on paper. Thermal wax transfer printers are better, because the heat from the print head tends to physically merge the wax dots together and improve the colour mixing. Best of all are inkjet printer, where the different coloured inks flow together before they hit the page, creating a true coloured ink.

DOUBLE SPEED

The Amiga's printer drivers have undergone a major revision with the forthcoming release of Workbench 1.3. In general, graphics screens will print out twice as fast with the new drivers. For example, using the Xerox 4020, under 1.2 a dump took 7'13", and from 1.3 only 3'08". The final quality was unchanged though.

lies (can't you just hear her mum saying, "Now wrap up warmly before you're digitised, dear.") The printout was very quick – 3 minutes for a full screen – and whisper-quiet, resulting in a superbly smooth image close up. However, the colour rendition was disappointingly dark, turning pillar box red into autumn scarlet, slightly losing the sparkle of the original.

For text, the Paintjet would prove a more than adequate NLQ printer. Indeed, there isn't any draft mode at all. It comes with two well designed fonts, Courier and Letter Gothic, which can be in any of the seven main colours from 10 to 18 pitch. Speed was an impressive 80 characters per second in a very crisp black, but only a quarter of that printing in colour. One nasty omission is that you can't get italics.

It's a most pleasant printer to use, and stylish with it. Text quality is excellent, and the Paintjet is tolerant of most kinds of paper. The 180 dpi resolution gives very smooth results. If only the ink colours were brightened slightly, it would be perfect.

HP PAINTJET

features	4.5
ease of use	4.0
speed	4.0
colour	4.0
format value	4.0

XEROX 4020

Rank Xerox ■ Bridge House, Oxford Road, Uxbridge, Middx UB8 1HS (0895 51133)
rrp £1437.50; buy direct

The Xerox 4020 is the old monarch of colour inkjets, and is being displaced by the HP Paintjet as the darling of mail order discount mongers. It has been supported ever since the Amiga was launched, under the guise of the Diablo C150 printer driver (Xerox and Diablo seem to be the same company). A new Amiga driver in the 1.3 set specifically for the 4020 is much improved. As with the HP Paintjet, ST users are left out in the cold and will have to resort to a transatlantic modem call to Compuserve to get hold of a Degas Elite driver.

In contrast to the Integrex and the Paintjet, the 4020 is big and bulky – it weighs around 30 lbs and would take up most of your desk space. Rather than using sealed cartridges, the 4020 has 4 separate ink wells which need to be uncapped and topped up. This can be a messy operation, although it does have the advantage that you don't waste ink – with the sealed cartridge system, if the magenta runs out before the yellow and cyan, you have no choice but to throw the lot away and install a whole new set. When you turn off, the printer goes through elaborate power-down ablutions for about 30 seconds to clear the jets out.

The wide carriage lets you install most kinds of paper, although the ink seems to look best on the specially coated paper supplied by Xerox. The absorbent surface spreads the ink just the right amount to give an apparently solid colour.

Graphics resolution is 120 dots per inch, less than the HP Paintjet, although there is a 240 dpi mode. This is a fix-up though, being 120 dpi with every dot printed twice, the second slightly to the right and below the first. The idea is that this gives a more solid image, and indeed the practice bears the theory out. The print time is the same in both modes, at around 3'10". The quality is very paper dependent, but after some trial and error produced the best results of any of the printers, significantly brighter than the HP Paintjet.

The 4020 really pumps the ink out of the jets, leaving the paper positively soaking. It's essential to make sure the bail-bar rollers don't touch the printed area or they'll smudge it; however, this means that areas of solid colour are very solid-looking indeed. As to Xerox's claim that you can print onto transparency acetate, that's best forgotten. Even after overnight drying the ink rubbed off immediately.

For text, the Xerox is competent , although none of the fonts quite look right as body text for a document . Underlined, italic, bold and condensed text are all available, in NLQ and draft; text in the pure colours (magenta, cyan, yellow) printed well, but the compound ones (red, green, violet) were very blotchy; and the fonts can be expanded to quadruple size. Speed was good (see the table for details), with black text being twice the speed of colour text.

The Xerox is an ugly beast and messy to use, but despite having a lower resolution than the HP Painjet, its ink colours definitely produce the best results of the printers tested.

■ *The Xerox 4020*

PRICES

All prices quoted in this feature are inclusive of VAT. Printers are usually available at large discounts, so shop around the mail order advertisers for a good price rather than ordering direct.

COLOUR PRINTING METHODS

Black and white printers are pretty simple – a dot matrix is a matrix of dots. However, there are several methods of printing in colour, some better than others, and of course the price goes up as the quality does.

CLOTH RIBBON (eg. Star LC10-Colour): these are the same as conventional dot matrix printers, except the ribbon is usually four parallel strips of differently-inked cloth, rather than a single black ribbon. A mechanism moves the ribbon up or down to position the right part of the ribbon over the right pin as the dot matrix fires.

THERMAL TRANSFER (eg. Okimate 20): the same principle as a cloth ribbon dot matrix, except rather than the pins in the print head hammering ink onto the paper, each pin is a tiny heating element. To 'fire', a pin is heated up very rapidly; the ribbon has a coating of coloured wax, which is then melted onto the paper. The resulting image looks smoother than cloth ribbon printers, but the waxed ribbon runs out very fast.

INK JET (HP PaintJet, Xerox 4020): again, characters are made up as a matrix of dots, but each pin is a miniature nozzle which squirts ink onto the paper. There's no ribbon to wear out, just reservoirs of ink.

COLOUR PHOTOCOPIERS: single colour photocopiers deposit toner onto a charged drum and pass the sheet of paper over it. To get colour, the paper passes over three separate drums in turn, magenta, yellow and cyan.

State-of-the-art machines such as colour laser printers in fact tend to use wax transfer rather than inkjet technology.

If you thought inkjet printers were expensive, PostScript-compatible colour laser printers start at around £20,000 – plus VAT!

XEROX 4020

features	4.0
ease of use	2.5
speed	4.0
colour	4.5
format value	4.0

STAR LC10 COLOUR

Star Micronics ■ Craven House, 40 Uxbridge Road, Ealing, London W5 2BS (01-840 1800)
rrp £343.85; best buy price £250

This is the budget end of colour printing, and therefore likely to sell many more units than the three inkjet printers put together.

If you've ever used a conventional 9-pin printer, you'll know what to expect. The LC10-Colour is simply the Star LC10 dot matrix with a coloured ribbon. It's got the same range of fonts and the same resolution as the LC10 reviewed last month, though now the dots can be in four colours.

■ *The Star LC10-Colour.*

The printer is a compact modern unit, aerodynamically streamlined in case you happen to print at supersonic speeds. It is light enough to fit on any shelf conveniently. Installation is simple, of course. Just slot the colour cassette into place, plug in the Centronics lead, and off you go. The Star conforms to the Epson JX standard of codes, which means that there are drivers under Amiga Workbench 1.2 and 1.3, and also in Degas Elite.

The colour output is obviously not up to inkjet quality, and the dot structure is very noticeable on close inspection. However, if you were going to pin the results to a wall and view from a few feet away you would probably be happy enough. Being a ribbon rather than a stream of ink, the colours you get from combining the primaries are less than convincing – browny shades looks a bit mucky, for instance. Print is agonisingly slow for a graphics dump, and you'll be waiting up to 10 minutes for a full screen. However, the results are not at all bad given the price. At the default 120x72 dpi resolution there is little of the horizontal banding that often happens in dot matrix dumps, although the supposed 'quad density' 240 dpi output is striped and overinked.

One potential advantage of ribbons over inkjets is 'graceful degradation'. Inkjets just run dry in mid-print, but at least you are warned your ribbon is going as you see the colour fading slowly.

For text use, the LC10 is excellent. It's simple and full-featured, and you can just slot a black ribbon cassette in place to effectively have a conventional Star LC10 at your command. NLQ mode is ponderous at 19 cps compared to the 80 cps HP Paintjet, but you get a wider variety of text styles. We reviewed the LC10 last month, so you know what you get.

The Star LC10-Colour is an excellent general purpose printer. If you really need top-notch colour printing it's not good enough, but it's worth paying the extra money over the standard LC10 price to be able to get a simple colour copy of your artwork.

And in the end

Software on the ST doesn't yet support colour printers well enough to be useful. Degas Elite is the only one which provides a good range of drivers, so you'll need to save your pics to be printed as Degas screens, then load and print them from the art package. The 'Colour' option on the Preferences menu is useless for high quality inkjet printers!

The Amiga does support colour printers properly, and makes them a sensible tool – it's great to be able to preserve your artwork for posterity, if you can afford it.

If it's sheer graphics quality you're after, the Xerox produces the best results with current ST and Amiga software. If your main use of a printer is going to be word processing, but colour would be a useful fillip, then go for the Star LC10-Colour. You've got an excellent conventional 9-pin printer there, even if the colour functions are a bit primitive.

STAR LC10-COLOUR

features	4.0
ease of use	4.0
speed	2.0
colour	2.5
format value	4.0

SUMMING UP

BEST GRAPHICS QUALITY
XEROX 4020

BEST GENERAL PURPOSE PRINTER
STAR LC10-COLOUR

THE FACT FILE

	INTEGREX 132	HP PAINTJET	XEROX 4020	STAR LC10-COLOUR
Weight (kg):	5.7	5.0	13.6	4.7
Dimensions (cm):	40x30x12	44x30x10	54x35x17	39x29x10
No. of pure colours:	7	7	7	4
Max. dot resolution:	160[1]	180	120[2]	120[3]
Amiga image print (secs)[4]:	227	179	186	476
ST image print (secs)[5]:	340	untested	untested	701
Text speed (cps draft):	26 (blk & clr)	n/a	63 (blk), 33 (clr)	83 (blk & clr)
Text speed (cps NLQ):	n/a	80 (blk), 17 (clr)	32 (blk), 17 (clr)	19 (blk & clr)

[1] In practice, the Integrex drivers on the ST and Amiga can only work at 80 dpi
[2] The Xerox has a pseudo 240 dpi mode, where every dot is printed twice.
[3] Ranges from 60 to 240 dpi. Default (and clearest) mode is 120 dpi horizontally, 72 dpi vertically.
[4] Using Workbench 1.3 drivers
[5] Using drivers from Deags Elite

BUREAUX

So a good colour printer is expensive – how many of you are going to rush out and blow a grand on a Xerox? One answer is to make use of a printing bureau. You send them your disk, they print your file on their printer, and post you back the finished copy. Try: Graphix, 141 London Street, Swffham, Norfolk PE37 7DW (0760 24947).

BYE BYE, OKIMATEY!

One of the most popular cheap colour printers in the past was the Okimate 20. The UK distributors, Technitron Data, tell us that they have now dropped that particular model. However, you might still be able to pick up remainders at around £180.

The Okimate was a thermal transfer printer, and ate up ribbons at a phenomenal rate – each one lasting for only a few printouts! However, because wax ink looks shiny when dry, the results looked quite good. Although useless for conventional black text printing, the Okimate produced better colour than the Star LC10-Colour.

SOFT MACHINE

ATARI HARDWARE

520ST-M/SF354	£242.99	1040ST-FM	£449.99
520ST-M/SF314	£269.99	1040ST-FM/SM124	£539.99
520ST-M/SF354/SM124	£332.99	1040ST-FM/SC1224	£719.99
520ST-M/SF314/SM124	£359.99	2Mb MEGA ST	£841.99
520ST-M/SF354/SC1224	£512.99	2Mb MEGA ST/SM124	£931.99
520ST-M/SF314/SC1224	£539.99	2Mb MEGA ST/SC1224	£1111.99
520ST-FM Super Pack	£359.99	4Mb MEGA ST	£1151.99
520ST-FM Super Pack/SM124	£449.99	4Mb MEGA ST/SM124	£1241.99
520ST-FM Super Pack/SC1224	£629.99	4Mb MEGA ST/SC1224	£1421.99
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SF314 3.5" 1000K Disk Drive	£143.99	SC1224 12" Med Res Col Monitor	£299.99
SH205 20Mb Hard Disk Drive	£539.99	SMM804 Dot Matrix Printer	£179.99
STM1 Mouse Controller	£22.99	SLM804 Laser Printer	£1169.99

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*White stocks last

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1Mb 3.5" Floppy Disk Drive	£98.99	1Mb 5.25" Floppy Disk Drive	£125.99

SUPRA DRIVES

20Mb Hard Disk Drive	£494.99	60Mb Hard Disk Drive	£899.99
30Mb Hard Disk Drive	£539.99	120Mb Hard Disk Drive	£1529.99

PHILIPS MONITORS

CM8801 14" RGB Colour	£196.99	CM8833 14" RGB/CVBS Med Res Colour	£259.99
CM8802 14" RGB/CVBS Colour	£298.99	CM8852 14" RGB/CVBS Hi-Med Res Colour	£294.99

MATRIX PRINTERS

Amstrad DMP2160	£142.99	NEC P2200	£389.99
Amstrad LQ3500	£349.99	NEC P6	£542.99
Canon PW1080A	£309.99	Panasonic P1081	£218.99
Canon A-60 F	£423.99	Panasonic P1082	£252.99
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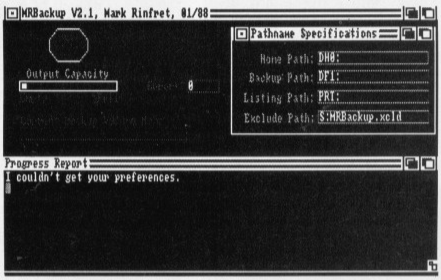
PD UPDATE

Jason Holborn and Elliott Stein search through the Amiga and ST Public Domain libraries in search of the latest and greatest freebies to revolutionise your computing.

AMIGA

All the programs listed within this month's Amiga PD update were taken from the Fred Fish collection of public domain disks. Most can also be found in other libraries but the disk numbers quoted refer to the Fish library.



■ *MrBackUp doing its stuff.*

TeXF Fonts Disk 135

The Amiga public domain libraries have always been a fine source of fonts for use within other packages. The main problem with PD fonts up to now has been that they have been on the whole spread thinly through the library; one font here, two fonts there but never more than three different fonts on one disk. Those of you who have been searching the PD libraries for some decent fonts will therefore be delighted hear that such a disk does indeed exist.

The TeXF fonts disk is in actual fact a collection of fonts for use in a commercial package called AmigaTeX. The disk includes over 22 different fonts of various point sizes ranging from 15 pixels high right up to a massive 150 pixels.

The fonts as they arrive are not in standard Amiga format so they cannot be used 'as-is'. Luckily, included on the disk is a conversion program to convert them from TeXF format to the standard format. An added advantage of the conversion program is that if you own AmigaTeX, it can be used to convert the fonts bundled with the package as well.

The overall quality of the fonts are very good indeed make a welcome change from the rather tired Workbench fonts. A worthy PD Platinum winner!

Boing Throws Disk 134

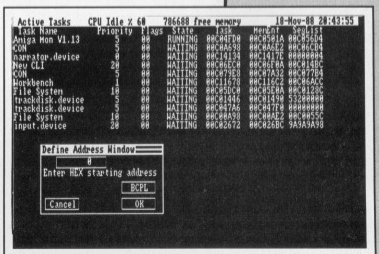
The Amiga's fabulous graphics and sound have inspired Amiga owners to produce a wide range of demo programs showing off one or more aspects of the Amiga. The classic demo, and probably the demo that did most to promote the Amiga in the early days was the now famous Juggler by Eric Graham.

Juggler was one of the first 'ray traced' demos to appear and has since spawned many similar programs of which one of the best is Boing Throws. Boing Throws is a neat little animation produced using Sculpt-Animate 3D that depicts a basketball player practising his shots. The animation is smooth and a real 'must see' for any Amiga owner.

MrBackUp Disk 129

So you just bought a 200 megabyte hard disk for your Amiga and intend taking regular backups onto floppy disk? Wait a minute, 200Mb of files are going to fill an awful lot of floppies: some 228 in fact! What you really need is a hard disk backup utility that includes file compression. Enter *MrBackUp*, fittings the bill perfectly.

MrBackUp is a nicely polished Hard Disk backup utility that works by



■ *Amiga Monitor allows you to see the state of your machine at any time. Here all open libraries are exposed to your gaze.*

carrying out a file-by-file copy from a hard disk to standard Amiga floppies.

The program includes an option to compress files therefore cutting down considerably the number of floppies needed. We unfortunately haven't got a 200Mb hard disk on our office Amigas, so we don't know quite how many disks under the calculated 228 you could be saved.

AmigaMonitor Disk 70

"I never knew there was so much in it!" That's usually the first reaction of someone on their first journey into the intricacies of the Amiga multi-tasking system. Hidden away in the darker depths of the operating system, a force is at work that keeps your Amiga on its feet. Interrupts are interrupting, resources are being resourceful and a whole host of mind boggling things are happening before your very eyes. AmigaMonitor is a program that lets you delve into the world of 'Exec' and see at a glance the goings-on of a state of the art machine such as the Amiga.

BEST OF THE REST

Here's a quick run down of the programs that didn't quite make these pages but are still worth a look.
MUNONS – DISK 137 - A cute little program that plays a digitised 'gulp' as a disk is inserted or removed from a drive.
HBHILL – DISK 123 – An impressive demonstration of the Amiga's 'Extra Half Brite' mode. Depicts a Fred Astaire type character dancing to the tune 'Hall of the Mountain Kings'.
CREF – DISK 103 – A very useful C language cross reference lister program. Useful for program debugging.

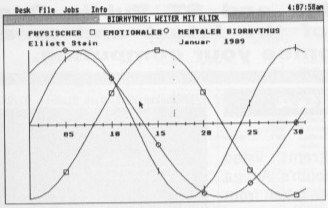
ST

This month's ST selection deals with a miscellany of titles – bits and pieces, interesting novelties and unique oddities. Many are helpful little programs which contribute to your productivity but don't quite fit in to any one particular category. Others are slick novelties to brighten up the Desktop.

GEM-Lock

GEM-Lock definitely falls into the 'no real use' category. So why feature it in PD Update? Quite simply because it makes your Desktop look nice! Why must a program be 'useful' anyway? When GEM-Lock is put into the AUTO folder of your boot disk, it will replace the drab, one-colour Desktop screen with any DEGAS picture of your choice. You can freshen up the Desktop by having a favourite drawing or digitised image in place of the green or grey baize backdrop. It stays there for the entire session, regardless of how many programs you enter and exit.

Unfortunately, this program only seems to work in low resolution, but no doubt some clever PD programmer will modify it to put a DEGAS picture onto the Desktop in any resolution. *(We had a program like this on the issue 5 cover disk – Ed).*



■ ***Check your Biorhythms before you get up in the morning to see whether you'd be better off just staying in bed.***

GRABBER and ICON EDIT are two other programs designed to give you complete aesthetic control over your Desktop. Both let you redesign your desktop icons. There is also MOUSE EDIT which allows you to redesign the mouse's pointer and FONT.ACC which allows you to replace the screen font with another.

The next oddity is 1st STEP, an excellent Biorhythms program. Having supplied your name and the date of birth the program creates a biorhythm chart of any month in any year. You can take a hard copy of the result and of the documentation file which contains interesting background information on biorhythms.

For the specialist

ST PD is chock full of specialist programs such as CARPET DESIGNER – for designing carpets and textiles *(You know, I wouldn't have guessed that – Ed)*, E-PLAN – a CAD package for electronic circuits, CRICKET – for calculating cricket averages, and PERIOD – a set of interactive periodic tables for chemists. There are also special databases designed for a Doctor's surgery, cinema goers and store keepers.

It must be said that some of the specialist programs have very limited appeal indeed. How about WASCHI – Computer Aided Washing, which tells you how long you should wash your clothing and in what temperature water. How could you do your laundry without it?

There are specialist programs to aid you in whatever unique hobby or interest you may have. HI-END is a german program for designing hi-fi speakers!

For astronomers there is SKYMAP which shows you the night sky from any angle, names individual stars, finds constellations and locates many other astral bodies. This complex program contains over 1500 stars and is fully GEM driven. There is also ORBIT, which allows you to track any object orbiting the Earth, a Database of 15385 stars and many other programs for astronomy enthusiasts.

PD PLATINUM

ACCENT

One of the oddest oddities must be ACCENT – a program which gives any ASCII file various accents such as: censored (?), Chinese, Cockney, German, Italian, Japanese, Lisp, Nerd, Pig Latin and a stutter! It is actually quite a good GEM driven program and is useful either for its novelty or for the translation of text to suit a particular dialect for a play or script. After ACCENT converts the file, you can use READER to actually speak it. READER uses a built-in software speech synthesizer to read back to you any ASCII file.

There are also programs designed to train you in specific skills – a morse code tutor, an excellent touch typing tutor called TYPING TUTOR and programs to test your vocabulary skills and geographical knowledge.

Next month we will feature what many feel is the backbone of PD software – the many helpful utilities and desk accessories... the type which help you get the most from your machine.

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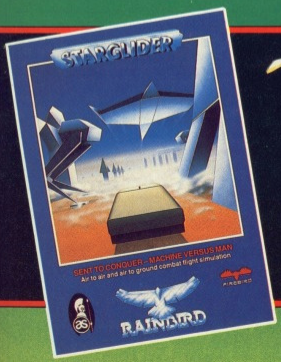
TELLING YOU WHERE TO GO

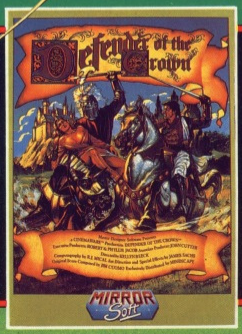
The ST CLUB distributes an excellent German magazine on disk, chock full of very advanced and highly original programs. A little common sense and a German-English dictionary can provide access to dozens of original games and utilities.

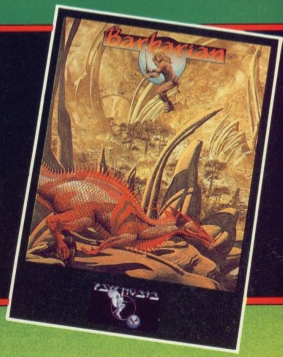
The best of these are the Universal Shell construction set to make your own user shells for any applications, an excellent 3D labyrinth, a scrabble game, a flexible data management program and many more PD programs of commercial quality. A full listing of these incredible German imports are available from ST CLUB on (0602) 410241.

T'R I 'A 'D

VOLUME · 1







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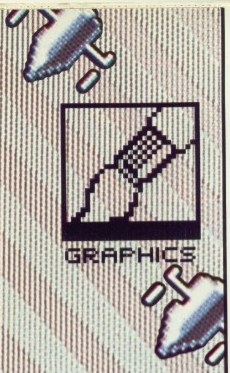


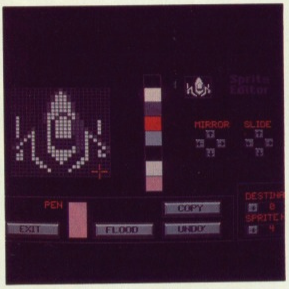
SEUCK

Now that Palace have released their descriptively titled Shoot-Em-Up Construction Kit, you can create your own arcade games. RICHARD MONTEIRO SEUCKs it and sees.

£24.99 ■ All Amigas; ST version due later ■ Outlaw/Palace Software, The Old Forge, 7 Caledonian Rd, London, N1 9DX (01-278 0751)

Oi you Amiga lot! Stop looking enviously at ST STOS users, the first Amiga game creator is here. Palace – best known for giving away free Maria Whittaker posters with *Barbarian* – have released SEUCK, Shoot-em-up Construction Kit. SEUCK by name... that's for you to decide after reading the review.

Past game creators rely on some form of keyboard input. STOS, for instance, is simply a version of BASIC with many useful sound and graphics utilities, and as such requires the user to have programming skills. Even Incentive's STAC adventure creator needs command input. If you're a non-programmer and you don't want to learn a language then SEUCK is the breakthrough you've been waiting for. Not a keypress needed – just point and click.



■ *Once you've designed sprites for a particular object, you can decide which frames you want to use. Each object can have 18 frames which can be flipped between at various speeds.*

Create your game

The biggest problem – deciding what sort of game to write – doesn't exist. That's because there's only one type of program you can write: a vertical scrolling shoot-em up. Restricting? Not entirely. You can choose the type of scroll, the manner in which aliens attack, how the background interacts with your craft, in-game sound effects and so on.

From the main menu, which is accessed WIMP style, your first stop will probably be the sprite designer. 'Probably' because the Construction Kit is geared in such a way that any part of the game can be created in any order. The sprite designer is used to create your craft, aliens, explosions, gunfire and any other objects you want floundering around the game screen. Most of the usual options expected of a sprite designer are present: horizontal and vertical flip (SEUCK calls it Mirror implying duplication, but it is actually a simple flip), slide in any direction and area fill. Sadly there's no really innovative effects. Still, 100 sprites can be defined for any game. Each sprite can use eight colours (which includes the background) and can be a maximum size of 24 by 24 pixels – restricting given the nature of the package. Colours are chosen from the Amiga's 4096 palette. Objects can consist of up to 18 sprite frames. A possible 60 objects may appear on screen (56 different types are allowed, 35 of which can be aliens) – in practice you would never have that many floating around as the action would be very slooooooow.

Background graphics are designed in a similar fashion to sprites: in blocks (of 32 by 32 pixels). The background editor allows you to create 140 blocks per game, each block can use eight colours (these can be different to the colours used for sprites). At a later stage in the game development these blocks can be joined together to form maps or levels. An individual game can consist of 32,000 blocks split into 22 maps or sections. That means you can have over 15 Mbytes of background! Try fitting that on a disk.

Shoot to kill

The next step, after designing sprites and background, is to determine the characteristics of these objects. Sprites can be categorised as friend, foe, bullet or explosion. You can decide on the speed, number of hits it takes to kill, number of points gained for killing, fire direction, fire rate, bullet speed, bullet sound effect, explosion sound effect and explosion graphic of an enemy sprite.

Alien objects can be given starting positions and flight patterns relative to the map. You simply move a joystick around the screen and SEUCK takes that as the flight path.

SELLING YOUR WARES

Palace aren't pretending that SEUCK can be used to create stunningly original chart-topping games, and they don't intend to market anything remotely SEUCKed. While one or two SEUCK games might be sneaked out through a budget software house, there's little chance of creating a saleable full price affair without it being instantly recognisable as a SEUCK-up job.

A DAY IN THE LIFE OF A SEUCK GAME

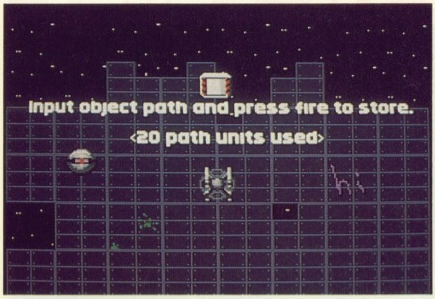
You've got a basic idea for a game. Jot down notes on paper; type of game, setting, objective and so on. Just because it's called the Shoot-em-up Construction Kit, there's no need to stick to *Xenon*-style games. How about *Boot Hill* '80s style, a *Road Wars* clone or a *Paperboy*-like game. Take time out to think about your game. Don't get stuck in a rut.

Decide on sprite size – not only your craft and the aliens, but bullets and explosions too. Everything that moves on screen is a sprite or object. After designing a whole load of frames for one sprite, your ship say, you must see what the object looks like when animated. That's tricky, and the final tweaking will probably only be done when the game has been completed.

Background graphics next. You have to be very careful as it easy to create patterns or use colours that will completely obscure the sprites. Spend more time getting the pattern right: the colours can be changed easily.

Putting blocks of background together to form maps is boring, but if done properly the end result can be very rewarding. Giving aliens flight paths and starting positions is also arduous. But make sure you work at this because the whole game centres around how well aliens swoop down at you or shoot at you. You have to ensure the game isn't too difficult or too easy.

Final tweaking can take weeks, but creating a basic game from start to finish can take less than a morning. We managed it.



■ *Make those aliens fly. Only memory limits the complexity of an aliens flight path.*

■ *Fitting the blocks together to make a map is dull, and can take a long time, if you're designing a game using 32,000 blocks!*

Flight patterns eat up memory, so it's wise to have a smattering of stationary aliens.

Your craft (and a second player's craft) can be assigned similar attributes: speed, number of hits required to destroy it, whether the ship explodes if it makes contact with an alien and so on.

Options are plentiful which is why the friendly point and click environment is so welcome.

Around 20 sound effects are bundled with SEUCK; these can be tagged to appropriate bullet and explosion sprites. Although there aren't an overwhelming number of noises, each can be replayed at any rate between 8kHz and 29kHz. Hence it is possible to change an engine throb into an explosion. It's a pity you can't import your own IFF sound effects.

The final countdown

Having constructed your sprites and background, decided which objects are good and which are bad, added sound effects to explosions and made maps from background blocks, you're ready to play your masterpiece. The game can be played fairly or with infinite lives. The infinite lives option means you can see exactly how aliens and background interact, whether aliens fly in acceptable patterns and – most importantly – test out playable the game is.

Sprite, background, sound, object and map data can all be saved separately in case you wish to amend sections on their own. No option for saving a stand-alone game appeared on the review version, but this is promised for the release version. If it wasn't, there wouldn't be much point to SEUCK.

Of all the game creators that have appeared on various machines, SEUCK is without doubt the easiest to use and the one which will produce results fastest. Anyone can use it as no programming knowledge is needed. SEUCK is limited in the kind of game it can produce; but what it does, it does well.

■ *The Format Gold game lives just four hours after conception. 30 sprites, 30 background blocks , 9 lives, 4 levels. Xenon, take a walk!*

SPINNING A YARN

There are no other game creators available for Amiga owners... yet. Incentive's STAC (ST Adventure Creator) might mutate into AMAC sometime next year. The ST version lets you mix Neochrome screens with text. You choose the text style, plonk objects at various locations and determine what happens when objects are encountered. AMAC won't be far from this. STOS, from Mandarin, is another ST-only game creator. It's a glorified version of BASIC (and non-compiled at that). And unless you're a programmer you'll find it hard going. Mandarin are still deciding whether to release it on the Amiga; it went down a storm on the ST so it's very likely you'll see AMOS soon.

Another game creator, Talespin, is on the way from Microdeal. Both for ST and Amiga. Price and release date haven't been confirmed yet as Microdeal are still using the system to create their own games (Grail Quest is rumoured to be the first). Talespin is more of a non-text adventure creator, and promises to let you include compressed pictures and digitised sounds within the game.

PRE-RELEASE

The SEUCK we saw was far from complete. There was no manual, no option for saving the complete game in stand-alone format and no way of adding a title screen to the game. All this is promised in the release version, available by the time you read this, plus three SEUCKed games.

EXPLODING A MYTH

Stories appeared in several magazines, including Format, stating that SEUCK was being used to create *Barbarian II*. Not quite true. A hacked version of SEUCK was used to design the background graphics, and not the majority of the game as implied.

for

- **Enjoyable to use**
- **No programming knowledge required**
- **Up to 60 objects allowed on screen at once**
- **Fast, smooth scrolling possible**

against

- **Impossible to add to the sound library**
- **Only one type of game can be created**

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
Not seen

format value
0 1 2 3 4 5

NEW FROM ROMANTIC ROBOT

MULTIFACE ONE, the MULTIpurpose interFACE, was a sensation when originally released for the ZX Spectrum four years ago. MULTIFACE TWO, for the Amstrad CPC range, followed 2 years later — same pattern, same success. Now the time has come for the MULTIFACE ST — the BIG brother to the MULTIFACE family. Same pattern? Yes, and with even more facilities! So, what can MULTIFACE ST do to make an ATARI ST owner's life so much easier?

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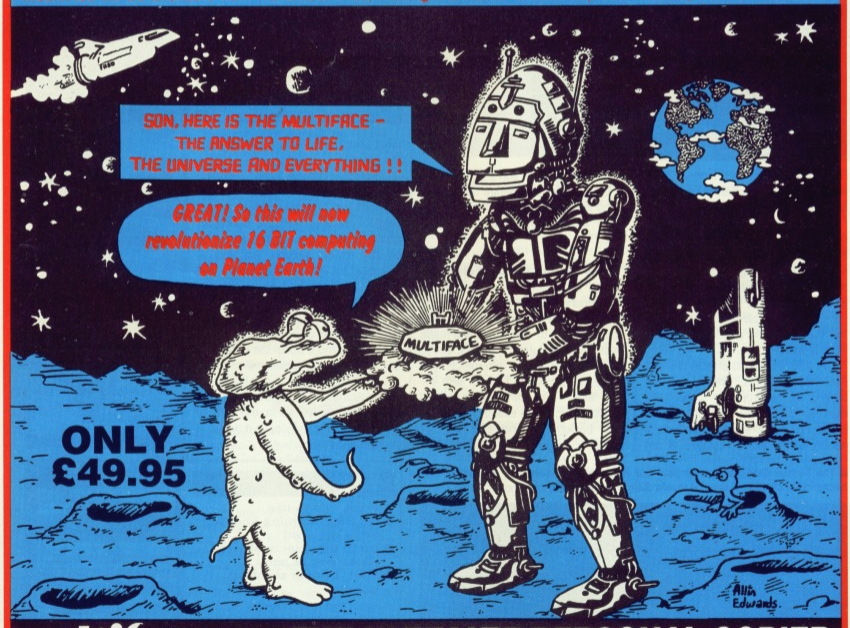
Being a hardware device, 'a magic box' MULTIFACE can back-up whatever you wish, as many times as you wish. HOWEVER, to prevent any piracy, which is illegal, the MULTIFACE MUST be attached to run programs it saved! MULTIFACE will be available from November 1988, making it an ideal Christmas present for any Atari ST owner!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MEGABYTES FOR MEGABUCKS

REVIEW

'Tired of waiting for your disk drives to copy files and folders? Always running out of disk space for documents or pictures? You need a hard disk, my friend. Slip me five hundred smackers and you're away'. SIMON WILLIAMS takes on the big disk touts.

No, hard disk suppliers aren't really like the intro suggests, but hard disks on the ST and Amiga are very expensive compared to those for some other machines. Are they worth the outlay and what do you get for your money? Here are three of the leading contenders stripped down and ready to run. Compare and contrast...

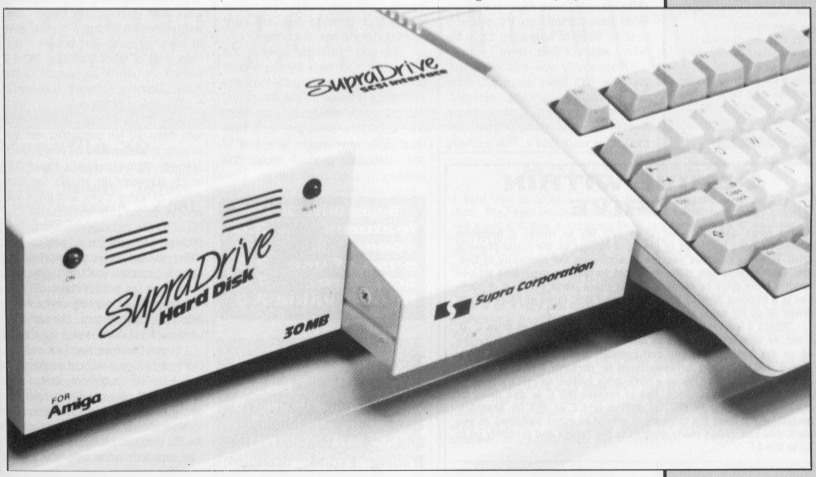
Supra Drive 30 Mb

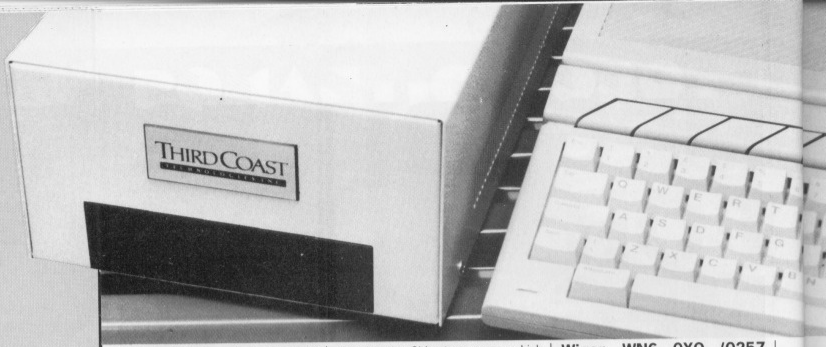
£699.95 ■ Amiga 500 and 1000 (internal model available for A2000) ■ Frontier Software, PO Box 113, Harrogate, N. Yorks HG2 OBE (0423 67140)

This is pretty much the one and only hard drive for the Amiga. There continue to be rumours that Commodore are working on one of their own, but for the moment, Frontier have a virtual monopoly with their range of Supra drives. The range consists of 20 Mb, 30 Mb and 60 Mb drives, though the 20 Mb is hard to come by at the moment and the 30 Mb is not 50% more expensive.

The drive consists of two distinct pieces of hardware: the 3.5" drive itself, which comes complete with its own switch-mode power supply, and the SCSI interface which translates the DMA signals from the Amiga's bus port into signals suitable for the drive.

The interface is metal-cased and is finished to a high standard. An extended edge connector plugs into the DMA port on the side of the Amiga 500, once the plastic cover has been removed from the Amiga's case – a similar connector on the interface allows the DMA to be taken through for other peripherals. Once





fitted, the interface sits neatly alongside the micro, though it would have fitted better if it had been aligned with the front and back of the keyboard unit. The interface case can take 1 Mb or 2 Mb expansion cards (2 Mb currently $800 in the States) as a simple plug in module, and these will work in conjunction with a half megabyte expansion within the A500. A1000 users can buy the Supra drive with a different interface and A2000 users can buy an internal drive and interface card, both at the same price as the A500 unit.

Installation is straightforward. After connecting the interface to the Amiga and the drive to the interface, all that remains is to copy the supplied boot disk and use it to start the system. This loads the hard disk drivers and you suddenly acquire an extra five icons on the Workbench. Each icon represents a partition on the hard disk, and each partition takes around 20K of system RAM to cover its directory information. This takes a total of 154K which is quite a chunk on a half meg machine. Some software won't have room in this curtailed environment, so it's probably best to think of upgrading to 1 Mb before adding a Supra drive.

Alternatively you could reformat the drive with fewer partitions, using the formatting software provided. Don't forget to back up the software that is supplied on the hard disk though, or you'll lose it. This software includes the CLImate program which acts as a front end for the CLI. A good program in its own right, this software would normally set you back £35 or so.

The manual is well written, and includes details of all the ways you can seriously damage your Amiga by using a hard drive. This document is actually quite daunting and includes the advice 'never switch off your Amiga before switching of the Supra drive or it could cause damage to the DMA bus'. If this is true, its rather worrying, as close down sequences are very difficult to maintain in a home environment. We suspect it's Supra covering themselves against the stringent US consumer legislation.

In use the drive performed well, making an awkward single-drive machine into a much more usable one. Paths are automatically installed so that the operating system can find all the everyday utilities you normally have to reinsert your Workbench disk for. Disk access is about three times as quick under the current 1.2 drivers, and Supra report a further increase of between five and eight times under the new 1.3 drivers.

The only remaining point is the price, which is high by hard drive standards. Even allowing for the extra interfacing required for the Amiga and the high build-quality of the Supra unit, £700 is a lot to pay for a hard drive. Still, when you're in a field of one, Hobson's product must look good

Supra Drive 30 Mb	
features	3.0
speed	4.0
ease of use	3.5
software	4.0
format value	3.0

Third Coast 30 Mb

£465 ■ any Atari ST ■ Third Coast Technologies, Unit 8, Bradley Hall Trading Estate, Standish, Wigan WN6 0XQ (0257 426464)

The big advantage of the Third Coast Technologies drive is its price. For roughly £100 less than equivalent drives from other suppliers, this one comes complete with DMA interface cable, DMA to hard disk interface, switch mode power supply, cooling fan, and the biggest hard drive case you ever did see! The case measures 38mm x 21.5mm x 13mm and the drive fascia itself is lost at the bottom of the front panel. Third Coast have tried to make an advantage of this by stressing how easy it is to add a second drive within the same case. The review unit had no DMA out socket on it for adding other external devices (like a laser printer), but Third Coast assured us that the production versions now supplied do have one fitted.

The manual consists of an A4 daisywheel-printed folder. This covers setup of the drive, installing the auto-boot option which dispenses with the need for a boot disk, and other useful bits and pieces, including brief instructions on adding a second drive to the one you've just bought – perhaps a bit of wishful thinking. What it doesn't include is any details of the Public Domain software supplied in the D partition of the disk.

The drive comes pre-formatted with three 10 Mb partitions, and one already loaded with a lot of useful PD software. Also supplied is a boot disk which automatically installs the hard drives as extra icons and gives you access to the disk immediately. The PD software includes formatting, partitioning and very basic back up software, as well as a compactor, the Kermit communications program, Mousetrap (as per Format cover disk 4) and a head parking utility which also hangs the system. The early, PD version of 1st Word is also supplied.

In use the drive was fast and efficient and worked without problem on the ST. The auto-boot utility also worked, but necessitated a reformat of the drive. It would have been nice to have seen some documentation for the PD programs, other than the DOC files supplied on the disk, which were

AMIGA DISKS AND DOS DISKS

If you are lucky enough to have an Amiga 2000 with a Bridge board (the card which gives IBM PC compatibility to an Amiga), you may be tempted to buy a PC hard disk card rather than an Amiga hard disk for your Amiga. This may be OK, if your main use for the hard disk will be running PC programs. If you want it for Amiga use, though, bear in mind that all access would have to go via the Bridge board, which could slow it down considerably.

It's four months now since we asked Commodore for a Bridge board to review. If they ever manage to sort out their labyrinthine bureaucracy, we may be able to tell you about it.

A DRIVE WITHIN A DRIVE

With a large capacity hard drive (20 Mb or more) it becomes unwieldy having hundreds of files and folders on the same physical drive, however rigorous you are in arranging the hierarchy of folders. To overcome this difficulty, most formatting programs let you subdivide the drive by creating two or more *partitions* on it. A partition is a notional division which gives you two, three or more logical drives all on the same physical drive surfaces.

What's a logical drive? It's what GEM can refer to as drive C, D, E etc, or what Intuition sees as dh0, dh1 or above. Although they're all on the same drive, you can consider each one as a separate device and can copy between them or perform any of the other functions which make life on a multi-drive system so much easier.

You might, for instance, like to reserve the C or dh1 drive for word processing, D or dh2 for utilities and E or dh3 for graphics. Assuming you have the software to create as many partitions as you want, you can assign many devices to the Amiga and probably up to 26 to the ST.

in a number of different text formats. While appreciating that the software supplied is subject to change, it's a pain to have to reformat the text files for printing, just to get a paper copy of the documentation.

The drive was also a good deal nosier than the Atari unit, partly due to the voluminous case which acts as a resonator, and partly due to the drive motor and cooling fan, which generates the resonations in the first place.

Overall, an excellent product. A shame the case couldn't be a bit more in keeping with the rest of an Atari system), but as a budget product it has to come recommended.

Third Coast 30	
features	3.5
speed	4.0
ease of use	3.0
software	4.0
format value	4.0

sectors.

Inside the case the first thing you notice is that the whole kit and caboodle is covered with a thin sheet steel screen. A folded metal cage connected to earth covers the main circuit board, drive, interface and power supply. This is to comply with US radio emission regulations and because the case of the drive is plastic, rather than metal. Removing the screen reveals a 5.25" drive sitting in the front left corner of the box(the Third Coast unit uses a 3.5" drive), with interface circuitry behind it and a switch mode power supply (nobody seems to use transformers any more) mounted above the main board to the rear. The whole assembly is neat and professional, though there's still quite a bit of room free inside the case.

When run up, the drive is fast and quiet. Although a cooling fan is provided within the case, it's a good deal less noisy than the Third Coast unit. The drive itself is only about half as fast as the Third Coast drive, though

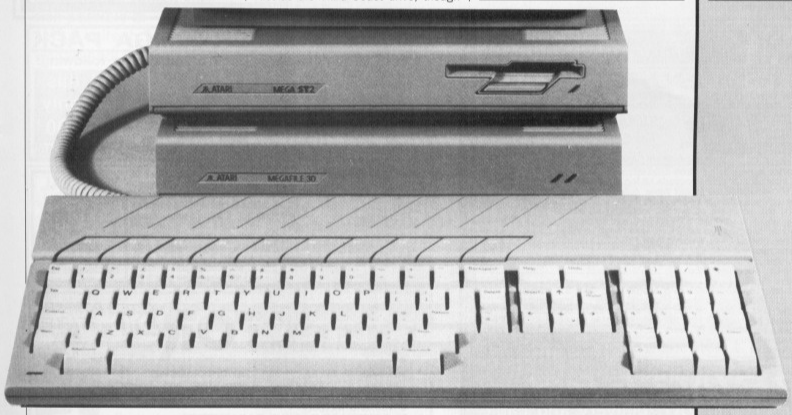
TABLE OF DISK SPEEDS

	sec
AMIGA	
DF0: to DF0:	110
DF0: to DF2:	114
Supra Drive to Supra Drive	32
ST	
A: to A:	128
A: to B:	113
A: to Third Coast	41
Third Coast to A:	93
Third Coast to Third Coast	16
A: to Megafile 30	66
Megafile 30 to A:	92
Megafile 30 to Megafile 30	29

These speeds were measured by copying a typical set of 11 files, totalling 350K, from one subdirectory to another on the various drives tested.

RLL FORMAT

The Third Coast and Atari drives are RLL formatted. RLL, which stands for Record Length Limited is a special formatting technique which provides 50% more room than a drive formatted with the older Modified Frequency Modulation (MFM) format. Before you all write in and ask where you can get an RLL formatter to reformat your own drives, you need a high quality drive and special hard disk controller to support this format. For the technically minded, RLL increases the number of sectors per track from 17 to 26.



Megafile 30

£599 ■ Atari UK ■ Atari House, Railway Terrace, Slough, Berkshire SL2 5BZ (0753 33344)

This is Atari's latest drive for the ST. Although styled to match the Mega ST series, it's completely compatible with the 520s and 1040s as well. The drive comes with an interface cable, a disk of formatting and installation software and a printed manual. The disk comes pre-formatted with three 10 Mb partitions and can be installed to boot from floppy disk or to autoboot from the hard drive itself. There is no software on the disk for backing up the hard drive, though the formatter copes with re-partitioning the drive and will also check the drive for bad

still a dramatic improvement on floppies. The partitions are labelled C, D and E on the Desktop and can be treated as three separate drives for all purposes.

The Megafile 30 works well, but is pricey and slower than the Third Coast unit. It could also do with some basic utility software, such as a backup routine. You have to weigh the disadvantages against styling considerations and the Atari name.

Megafile 30	
features	3.0
speed	3.5
ease of use	4.0
software	3.0
format value	3.0

HARD TIMES

A hard disk is, in fact, several disks all spinning on a common shaft. They spin much more quickly than a disk in a floppy drive and each disk has a separate head (sometimes two, if they are read on both sides). The whole mechanism is enclosed in a partial vacuum to stop any particles of dust getting between the heads and the disk.

This extra protection is needed because the heads don't actually touch the disks once the unit is up to speed, but ride over its surface on a very thin layer of air. This is why hard disks are generally more fragile than floppy disks, and why it's important to 'park' the heads (move them off away from the disk surfaces) when the drive is transported.

If you time floppy and hard disks doing the same operation, as we have in this review, you'll find that the hard disk can generally read and write data between 3 and 10 times quicker than a floppy. The smallest hard disks have a capacity of around 10 Mb (about 12 double-sided floppies worth) and rise to several hundred megabytes, though these giants are normally only used in business, where their costs can be justified.

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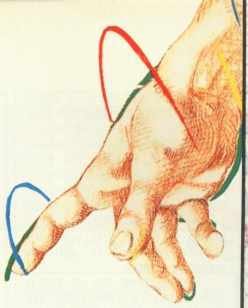
FLAIR PAINT



REVIEW

Tablets, cuckoos, pot and shearing! No, it's got nothing to do with a veterinary surgery or illegal hallucinatory substances. These are just some of the phrases and features found in the long-awaited paint package from AMS. RICHARD MONTEIRO checks the plot.

£34.99 ■ All STs (1Mb recommended), Amiga version possible ■ AMS/Logitech 166-170 Wilderspool Causeway, Warrington, WA4 6QA (0925 413501)

Like most AMS products, *Flair Paint* has had a tough job making it into the real world. First there was the amalgamation with Logitech (which resulted in the original name *Finesse Paint* being dropped), then there was the possibility that the product might not be released, and of course bugs, manual changes and packing all played their part. After more than six months of edge-of-the-seat suspense, *Flair Paint* has finally made it. Rest assured, the wait was worth it.

Flair Paint continues AMS's passion for anything graphic/DTP based: it is a typical art package with low and high resolution editing facilities. But it also provides GEM .IMG file editing (like HyperPaint), true WYSIWIG, real-time execution of most functions, sexy front-end, blitter-enhanced operations (if the chip is fitted). And that's just for starters!

If you start *Flair Paint* without altering the defaults, the Epson FX printer driver and corresponding 'canvas' (draw area) are set. The drawing area is initially set according to the printer.

Unflair advantage

The instant you start the program you see the Main Tablet (or window) containing 12 icons. Clicking on a icon generally results in another tablet appearing. Like normal GEM windows, tablets can be dragged anywhere on the screen and overlapped without loss of data. Unlike GEM windows, tablets move in real-time. This means the whole window moves with the mouse pointer, not just its outline. It is possible to set up the tablets to pop or zoom onto the screen. The fade, materialise and twinkle effects are truly wonderful, but are purely cosmetic.

The first icon in the main tablet

■ *Flair's user interface is undoubtedly the prettiest around. Just look at those twinkling tablets. If you have two overlapping tablets, and you want to access the hidden one, clicking anywhere on the partially covered tablet causes it to dematerialise and then re-materialise in front. The effect is breathtaking.*

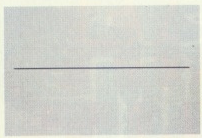
BRUSHES AND PATTERNS

A number of different brush shapes are selectable from the Paint tablet. Flair comes with many different colours and patterns that can be used by the brushes. If you want to design your own brushes or create new patterns, select the paint tablet and click on the brush display. A Brush Editing tablet appears.

A grid measuring 16 by 16 pixels pops up, showing the brush in current use. You can flick through the various brush styles until you see one you want to hack. In addition to plotting and unplotting pixels, you can slide, flip, rotate and invert the whole brush.

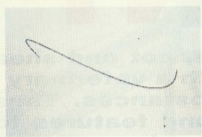
Clicking on the pattern window in the Palette tablet gets you into the Pattern Creating tablet. Flair Paint has 36 patterns with provision for making another 14 more. Patterns can consist of 16 colours. Slide, flip and rotate effects are possible. An area of the screen can also be grabbed and used as a pattern.

/sequence of four shots to go here/

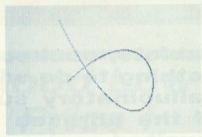


■ *A day in the life of a Bezier curve: straight line first.*

■ *Adding the first kink...*



■ *Now for the second.*



■ *A bit more twisting and it's done.*

provides you with numerous utilities including a disk formatter with facilities for fast and extended formats, customised control panel, calendar, exit to GEM, analogue and digital clock display, notepad and print. An alarm feature can be set from the control panel to produce an animated cuckoo clock complete with sound effects. It's brilliant. The cuckoo only appears on machines with one megabyte or more.

The Disk tablet lets you load or save a canvas, a screen cutout (portion of a canvas), patterns, brushes and notes. File formats supported include Flair (filenames of which can be up to 20 characters long, may include spaces, and may be a mixture of upper and lower case), IMG, Degas, Neochrome and Art Director. One omission is the ability to read Amiga IFF graphics.

Artistic Flair

.IMG files are supposed to be *the* GEM picture-file format – especially now Atari have launched the IMG-promoting *HyperPaint*. The IMG format allows you to have pictures larger or smaller than the standard screen, but has only been half-heartedly accepted by DTP packages on the ST (Fleet Street and Timeworks, for instance). HyperPaint and Flair combined might carry enough weight to make other software houses use IMG. That's won't be a bad thing – file formats need standardising. Look how well the IFF standard works on the Amiga.

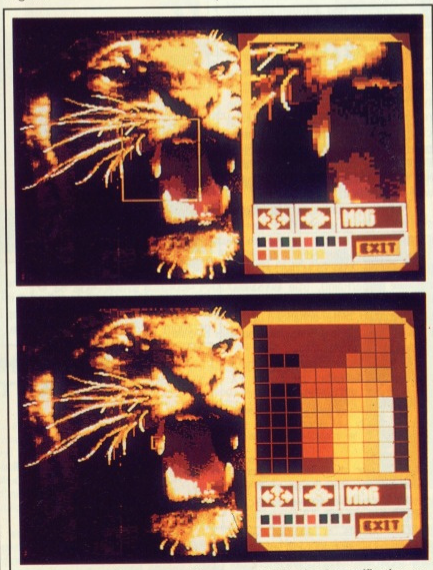
Flair Paint can load and use GDOS fonts, but can't edit or save them. An interesting feature is the ability to tag a short note to saved data files, for extra information.

The Text tablet lets you manipulate text on screen. All you need do is select the style – thick, light, italic, underline, outline or any combination thereof – size (from 6 to 20 pixels high) and type whatever you want.

You can move text anywhere you like on the canvas – it's only fixed when you click the left mouse button; similarly you can alter the spacing between lines and rotate the text in either direction, through 360 degrees.

The Cut, Edit and Paste icons let you move and delete bits of canvas. There's nothing innovative in this department except for the amazing speed at which you can shift great chunks of graphic data, and the fact that you can edit cutouts before they are pasted elsewhere. Only rectangular areas can be cut, which is limiting.

The Palette tablet is arguably the most important of the lot. Here you can select and mix colours, pick pat-



■ *You can magnify any part of the canvas. 12 levels of magnification are possible. The grid is optional.*

SMART KEYS

Pressing certain keys while tablets are on screen provides you with several handy items:
– Change mouse pointer (cross hairs, magnifying pointer and so on)
– Display mouse pointer co-ordinates.
– Change palettes.
– Undo last action. In some cases it is possible to undo a succession of actions.
– Select special effects.

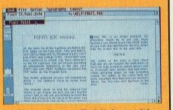
There are also undocumented key combinations that produce interesting effects. But these are for you to discover.

REMOVABLE ACCESSORY

How many accessories do you know that can be removed from the Desk menu once installed? Yep, you can count them on the fingers of a foot with no toes. *Flair Paint* is the first to allow itself to be expelled from the Desk menu. It can also remove the RAM disk and printer spooler.

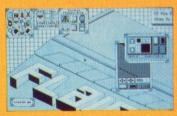
FLAIR PAINT AS AN ACCESSORY

The implications of having Flair as a Desktop accessory may not seem obvious at first. Consider this: you have to produce company reports with a DTP package. The DTP is fine until you want to do anything fancy – a squiggle, bar chart, polygon or any intricate design. You simply can't do it. Of course, you could exit from your DTP software, load up an art package that can cope with IMG format and draw your picture. Then back you go to the DTP package to import the graphic. Boring!



■ *Fleet Street Publisher with Flair Paint waiting to pounce.*

Before Flair boots – even in accessory format – it asks you whether you want a RAM disk or printer spooler. If you've got the memory, it's wise to go for a RAM disk of 200K or so. Once Flair is sitting comfortably in the Desk menu, you can load your DTP software (Fleet Street Publisher or Timeworks DTP, say).



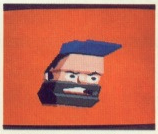
■ *Designing a logo in Flair for use in Fleet Street Publisher.*

Create your page as normal, and simply select Flair when you need graphic images. As Flair can work in high resolution and save files in .IMG format, you're laughing. RAM disk operations speed things even more.

/sequence of five shots to go here/

■ *That guy looks familiar.*

■ *Bigger and fatter after being resized.*



■ *A quick vertical flip later.*

■ *Let's spin again, like we did...*

■ *And now for the sheeaaaaaar.*

terns and adjust line thickness and style. Although there is a palette of 512 colours, only 16 can be displayed at once in low resolution – a limitation of GEM. One very useful function allows you to select two colours and have the computer fill in a range of tones between them on the palette. Ideal for intricate shading. A Pick option lets you choose a colour from the screen. This can be useful if you're not sure which shade you used previously.

With Flair Paint, you're not restricted to a canvas the size of your monitor screen. You can have one any size, from 32 to 9999 pixels square. You need a lot of memory for very large canvases: around 12 Mb for the largest possible canvas. The ST can only address 4Mb!

Flair cop

The Viewport tablet lets you decide the position and size of the window on the canvas. You can elect to work on the whole canvas or just a small part of it. To display the whole canvas on screen, it has to be considerably reduced – to around a third of its size. Reducing it by this amount means that one pixel on the screen represents three dots on the canvas in each direction. So every pixel modified on the screen would alter nine dots on the canvas (3 by 3 remember).

A Grid Lock tablet lets you create grids of vertical and horizontal lines over the screen or canvas. It's used for ensuring accurate drawing and positioning.

Excellent effects can be produced using items from the Resize tablet. Images can be made bigger, smaller, thinner, fatter, flipped back to front, flipped top to bottom and sheared. The effects take place incredibly quickly – faster than on any other ST art package. If you've got a blitter fitted then the effects are blindingly fast.

Show some Flair

The Magnify tablet offers incredibly fine control over creating and editing of designs. The upper part of the tablet shows an enlarged display of the screen contents centered around the mouse pointer. Over the display is a grid in which each square represents one pixel. The grid may be removed. Twelve levels of magnification are possible. Unfortunately, it isn't possible to use any editing features other than changing colours and simple pixel plotting.

Straight lines, with or without arrowheads, starburst lines, connected lines, arcs, Bezier curves, rectangles, rounded rectangles, circles, ellipses and polygons are just a few of the things possible from the Shapes and Lines tablet.

Really beautiful Bezier curves can be created easily and quickly. Bezier curves are created mathematically – you don't do any of the work, that's left to Flair. All you have to do is move any of four points along the line to change its shape.

The Fill tablet lets you fill areas of the screen with new colours and patterns. Flood fills with a continuous area of colour while Edge fills an area until a boundary selected by you is reached. Flood works in two ways: either by filling pixels directly touching each other or by filling all pixels, including diagonally touching pixels. Over lets you select various colours on the screen and change them all with one click. Under saves some parts of your design and recolours the rest.

Flair comment

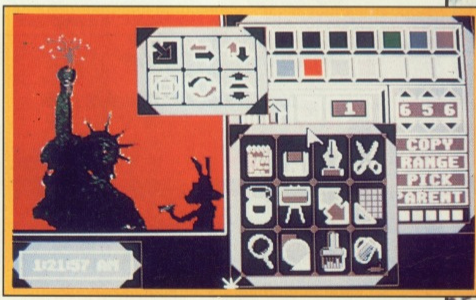
What a package! Who cares about the long wait when the end result is this spectacular. The speed at which some functions work is exhilarating, far faster than any other ST art package.

Flair can be used as a desk accessory. This has tremendous potential, particularly when used with DTP packages. Having powerful features for copying, shearing, magnifying and so on makes Flair the ideal choice for DTP users wishing to dress up their pages and artists who enjoy l useful painting facilities, responsive control and a sexy front end.

It will take time to learn to use Flair to the full as, along with mouse movements and mouse clicks, a plethora of key presses are required to get at extra features. Most are logical or are Function-key presses. Even so, it would have been nice to have a Function-key strip included in the package. Still, the packaging and manual are first class and do justice to the software. It's a winner. Pity about the price rise though (it was going to be £29.95 when we first heard of it).

CUDDLY COUPLE

Programmer Jeff Lawson and graphics man Mark Bicavance spent two and a half years perfecting *Flair Paint*. The speed and slickness of the package is due to Jeff's strict programming practices: 68000 code throughout and the maximum of GEM calls. What a man.



■ *The canvas can be many times larger than the screen, which is why the shrink option is useful; you can see the whole canvas, albeit in a much-reduced format. Depening on the exact diemsions of the canvas, images can be viewed full size plus a half, a third, a quarter or a fifth of actual size.*

for

- Attractive front-end
- Runs as a desk accessory too
- Very fast on complex operations like rotate
- IMG, Degas, Neochrome and Art Director formats supported

against

- Only rectangular areas can be cut and pasted
- Memory is tight on a 520

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
0 1 2 3 4 5

format value
0 1 2 3 4 5

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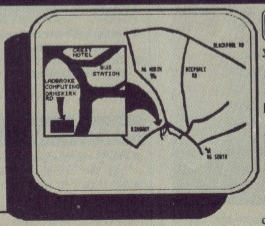

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COMPOSE YOURSELF

CHRIS JENKINS leaves his synthesisers and drum machines to gather dust, and tries his hand at creating music on the sound chips of the ST and Amiga.

Nice though it is to have a stack of MIDI equipment which makes your bedroom look like Houston Mission Control, it's not necessary to use any external devices to make music on your computer. There are plenty of music software packages which require nothing but an ear for a tune, and a bit of patience.

You're limited, of course, to the sounds which your computer can make unaided. In the case of the ST, where the designers included the sound chip largely for its useful I/O functions rather than for its sonic wonderfulness, you're a bit limited. The ST's concession to non-MIDI musicians is a standard (and pretty dreadful) Texas Instruments sound chip similar to that found in the 128K Sinclair Spectrum and Amstrad CPC, which is inferior to that of the Commodore 64. Still, it's possible to bash out a decent tune on it, given the right software.

The Amiga, though, is a different kettle of eels altogether. The Amiga features Paula, a custom sound chip which can be used both to synthesise electronic sounds and to replay digital samples of real sounds.

ENTRY LEVEL ■

Let's assume that all you want to do is to use your computer's internal sound chip to create simple pieces of music; you might want to learn to read and write music, you might be developing jingles for a game you're writing, or you may simply get some kind of perverted kick from making your Amiga play 'I Should be So Lucky'.

What software should you look for? Entry-level packages for both machines are offered by Electronic Arts: *Music Construction Set* for the ST and *Instant Music* for the Amiga.

MUSIC CONSTRUCTION SET

£24.95 ■ All STs ■ Electronic Arts, Langley Business Centre, 11/49 Station Rd, Langley, Nr Slough, Berks (0753 49442)

Aalthough pitched as an entry-level package, MCS has some sophisticated features often not found in packages costing three times more – for instance, it uses conventional music notation and can print out scores.

The stave scrolls and notes become highlighted as the music plays. You can deactivate this feature if you prefer, but it's very useful if you are trying to learn to follow a score.

Creating music couldn't be simpler: either click on a note length or rest from the note palette, select a voice number from the icon box, and place the note on the stave. Alternatively click on the note you want on the graphical keyboard. You'll hear your note playing, and its pitch vale will appear elsewhere.

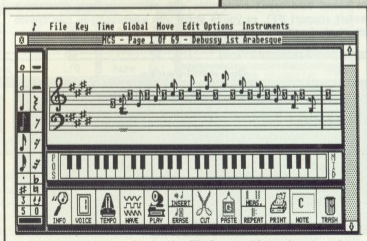
Notes can be deleted or modified (turned sharp or flat, tied, made into triplets and so on), and a clever magnifying glass feature lets you display all the data relevant to a single note – pitch, length, voice and so on.

The Waveform Editor allows you to make up your own instrument sounds. Here you can select the voice you want to edit, give it a new name, choose whether to have tone or noise in the sound, add vibrato, and alter the eight-stage volume envelope. You can save the resulting sounds as part of your composition.

MCS compositions can be played back separately as a free-standing program, by using the desk accessory song player, or with a Musical Slideshow accessory program.

Although MCS requires some musical knowledge and has limited sound editing facilities, it is easy to use, flexible and good fun.

features	**4.0**
performance	**4.0**
ease of use	**4.0**
manuals	**3.0**
format value	**4.0**



■ ***Music Construction Set on the ST. Compositions play over the three ST voices, and can consist of 16 instruments of your choice. A range of instruments are provided – from piano to sax – but you can easily create others.***

MUSIC

INSTANT MUSIC

£24.95 ■ All Amigas ■ Electronic Arts, Langley Business Centre, 11/49 Station Rd, Langley, Nr Slough, Berks (0753 49442)

EA's entry-level package for the Amiga is more advanced than MCS, but still easy to use.

Instant Music uses a graphical display to represent notes – easy to pick up, but doesn't have the flexibility of conventional musical notation. Rather than a stave display, there are a series of coloured blocks representing the notes for each instrument. Each instrument box has its own hide and display, volume, and transposition buttons.

Tempo is set by a scroll bar at the top left of the screen, while timing, for some odd reason, is set from the Draw menu (more of that later). Composition is achieved by selecting an instrument and plonking a block on the grid. Pitch is determined by the block's vertical placement and note-length by the size of the block. A chord of up to three notes can be placed on the grid in one operation.

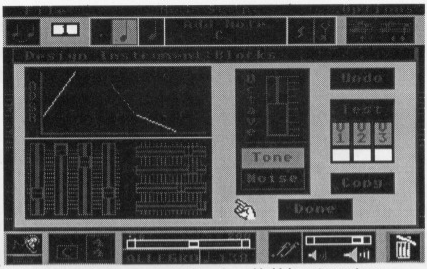
Instant Music's graphic notation system is certainly great if you can't cope with traditional musical notation, but it's hopeless if you're a music student.

One clever function is the ability to play music in real time. You simply click on the appropriate button and the computer plays as you move the mouse around the screen. By selecting one of the preset 'pitch guides', you can make sure that what you play is always in tune with the other tracks – making you sound like a brilliant musician!

There's a full selection of cut, copy and paste facilities hidden away in the Edit menu, and Quickdraw allows you to instantly fill whole blocks with notes determined by the current Pitch Guide.

Instant Music falls between two stools. On the one hand it's easy to use, capable of reproducing startling sounds and IFF file compatible; but sadly it has a non-standard composition format and no editing facilities.

features	**4.0**
performance	**4.0**
ease of use	**4.5**
manuals	**3.0**
format value	**4.0**



■ *ST Music Studio lets you plant coloured graphic blobs or true notes on staves. The idea being that both novice and old hack can join in the fun.*

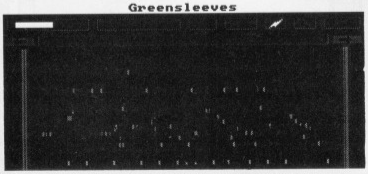
GIST FOR KICKS

Electric Software (0954 61258) distribute GIST for the ST. Hyped as a sound development program, it lets you create sound effects by manipulating envelope and volume waves directly on screen. Composing isn't possible. Sound effects can be incorporated into your own programs – and work under interrupt – but don't stick to the DO SOUND standard. Instead, GIST uses its own proprietary interrupts which are claimed to be faster and more powerful than the DO SOUND equivalents. Price is £34.95.

AMIGA MUSIC STUDIO

£24.99 ■ All Amigas ■ Activision, Blake House, Manor Farm Rd, Reading, Berks, RG2 0JN (0734 311666)

The Amiga version is almost the same as the ST version, except in the Instrument Design page. After selecting one of the fifteen preset instruments, you can choose one of 33 preset envelope shapes for each of the seven harmonics making up the sound. You can balance the volumes of the harmonics to determine the overall sound, and adjust the overall envelope time up to three seconds. You can switch sustain on or of, add vibrato or tremolo to the desired depth, and assign each sound to the left or right stereo output. Unfortunately the sound files aren't compatible with other programs (that is, it doesn't support IFF), so you're stuck with whatever you can create with Music Studio.



■ *Instant Music (Amiga) uses graphics to represent notes on screen. Easy for the beginner, but not so easy for the competent musician. Its in-built 'artificial intelligence' lets you compose music that's always in the right rhythm.*

MID-RANGE

If you want a package which features both conventional notation and graphical composition with sound editing and score printing, take a look at Activision's's *Music Studio*. Available for both the ST and Amiga, the composition features are almost identical for the two versions, though of course the sound editing aspects are entirely different.

ST MUSIC STUDIO

£24.99 ■ All STs ■ Activision, Blake House, Manor Farm Rd, Reading, Berks, RG2 0JN (0734 311666)

Composing takes place in a similar environment to EA's MCS; a conventional music stave, and option icons located at the top and bottom. You can place up to 8000 notes – in 15 differently-coloured batches of notes on the stave, each representing a different instrument. You'll only be able to actually hear the sounds represented by the last three colours (four on the Amiga) unless you get into MIDI.

You can scroll through the music a note or a bar at a time, and create your own tunes by placing notes, rests, sharps, flats, ties measure bars and other symbols on the stave. You can change key or time signature from the menu, in which case the notes will redistribute themselves. Up to three verses of lyrics may be added to your song.

If you prefer, you can use the Music Paintbox which allows you to compose in coloured blocks. There are five note lengths available, and you can translate the Paintbox compositions into conventional notation.

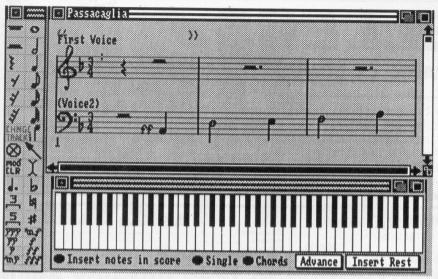
The Instrument Design page allows you to define the envelope, octave and waveform components of sounds. The results can be saved either individually, or as part of a complete composition.

There's nothing glaringly wrong with the Music Studio. It offers virtually everything you could want: conventional or graphic composition, definable sounds and lyric printout.

features	**5.0**
performance	**4.0**
ease of use	**3.0**
manuals	**4.0**
format value	**4.0**

TOP OF THE RANGE

Probably the best top-of-the-range non-MIDI music packages for the Amiga is EA's *Deluxe Music Construction Set*. It's a much more sophisticated program than MCS for the ST, despite sharing some of the more obvious features. It's an obvious move up from Instant Music, because it can load IM tunes and print them out as complete scores.



■ *Some of the things possible with Deluxe Music Construction Set: songs created with Instant Music can be loaded and then printed out, compositions can be exported for use with Deluxe Video, instruments and songs from Deluxe Library can be played.*

DELUXE MCS

£69.95 ■ All Amigas ■ Electronic Arts, Langley Business Centre, 11/49 Station Rd, Langley, Nr Slough, Berks (0753 49442)

The main display shows the by now familiar music stave. To the left is the Note palette including standard note lengths plus dotted, triplet and quadruplet notes, and at the bottom a piano keyboard which you can play with the mouse.

DMCS's 'score setup' menu allows you to configure the music stave in any way you want. Using sliders and buttons you can choose the number of bars per line, beats per minute, score width, overall volume, and number and type of staves; treble, bass, tenor, or alto. You can have up to eight staves, though you'll still be limited to the Amiga's four simultaneous voices unless you start MIDI-ing. The digitised instrument sounds are very convincing and flexible, and the file format used means that you can add new sounds from many file-compatible programs.

Time signatures are variable from conventional 4/4 or 12/16 to unorthodox signatures such as 9/4.

The key requester box lets you set an overall key for the piece, or force a change of key for specific measures. The editing functions include useful Double and Half Time options which change the length of notes you have already placed. Of course there's a whole range of editing functions – if you need more room in a measure, you can even click and drag the bar lines.

The groups menu contains options which let you raise or lower the octave of any measure. A text insertion tool in the Note Palette menu lets you enter lyrics. When printing out your scores and lyrics, you can even select different fonts. It's also possible to insert fret board notation into your score if you intend to play it on guitar.

DMCS scores are saved with a IFF-SMUS extender. This contains all the scoring and sound information; so when you reload, all the instruments required for the score are loaded at the same time. If you want to alter things later, you can load a single instrument from disk and place it in the required voice position.

DMCS suffers in that it has no sound synthesis capabilities. You may find yourself having to use another software package (or hardware sampling system) to supplement its sound library. However, it has excellent compositional tools and musical facilities.

features	**5.0**
performance	**5.0**
ease of use	**4.0**
manuals	**4.0**
format value	**4.0**

COMING SOON

Sound FX for the Amiga from the Sales Curve (01-585 3308). An easy to use sequencing package that follows on from the public domain version of Sound Tracker. Each sequence, of which there are four (one for each Amiga voice), can have 63 steps. No internally-created sounds can be used; only standard IFF samples. Raw sample format might be supported (as that's what Tracker uses), but as the package is still under development anything could happen. No price or launch date yet. But keep watching Format.

THE SMUS CONNECTION

Back in 1985 Electronic Arts and Commodore banged heads to decide on a standard file format for virtually all types of data. EA, being left to do the development, eventually came up with IFF (Interchangeable file format). Although there is an EA IFF format for music score data, it hasn't widely accepted. Instead Aegis' SMUS-IFF (Simple MUsic Score), is recognised as the standard.

FAMILY VIEWING

For one reason or another all the other music-composing packages detailed in these pages have been categorised into groups, ranging from beginner to advanced user. One product which fits into all these categories is *Aegis Sonix* for the Amiga (distributed in this country by HB). Not only is it ideal for the beginner, but it also comes packed with features to satisfy the most wisened musician. Here's what it offers...

AEGIS SONIX

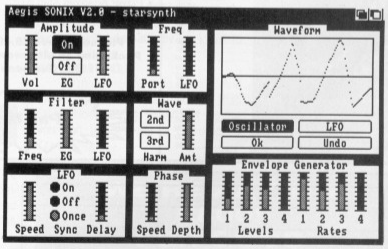
£57.50 ■ All Amigas ■ Aegis/HB Marketing, Brooklyn House, 22 The Green, West Drayton, Middx, UB7 7PQ (0895 444433)

Originally called Musiccraft before its overhaul, Sonix contains an on-screen waveform editor, a built-in envelope generator, low frequency oscillators and filters, composing facilities, MIDI-device handling and more.

Sonix lets you create, modify and edit any type of synthetic sound (that is, machine made) or digitally sampled sound. The edits can be played back using the Amiga keyboard, external Colortone keyboard (this is available only in the States and plugs into the joystick port) or an external MIDI instrument.

With the waveform editor, you can create custom synthesizer sounds and save the results to disk. The sound can be used as an instrument in a composition; in fact any sampled sound saved in IFF format can be used. Vibrato, depth and vibrato delay of a sample can be altered. Because Sonix uses the IFF-SMUS format, it is completely compatible with Deluxe Music Construction Set, Soundscape and Music Studio. You can create any type of score using the built-in note editor and save it as an IFF file. The file can then be loaded into, say, Deluxe Music to have lyrics added.

Sonix allows both the skilled musician and the beginner to create any type of music. There are plenty of features to keep the professional happy, while the excellent book – which covers music structure and theory as well as program operation – will get the amateur on the road to creating complex compositions.



■ *Aegis Sonix for the Amiga. The manual has many chapters devoted to music theory, yet the software carries enough punch to knock out any heavywight musician.*

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format value	**4.0**

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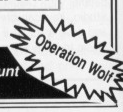

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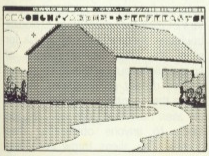
DISK EXTRA

ST Amiga Format's unique dual format disk gives you the best of both ST and Amiga worlds! JASON HOLBORN guides you through the month's finest.

ST

40 FLYING SHARK

Bandits at 12 o'clock, Biggles! Firebird's blistering biplane coin-op conversion makes it onto the ST, and we're proud to present nothing less than the entire first level for your edification. Now go out and bash those baddies!



41 HISTART

Over here, mono users! Just for you, a full featured high resolution paint package that knocks pixels off similar commercial offerings. Who needs hundreds of colours when HiSTart makes creating stunning black and white pictures so easy?

44 FSEL

A brilliant little utility to change the standard GEM file requester to give you more power. Now you can get disk directories, file sizes and loads more info from within any program

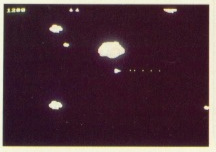
44 ELITE CHEAT

Never again will you get sand kicked in your face by some pathetic space pirate. This hack lets you customise your Cobra space fighter into the meanest craft this side of Beetlejuice 5!

AMIGA

40 COSMOROIDS

It's blast from the past time once again, back to the early days of computer entertainment as you dodge and shoot space rocks and aliens in this faithful Asteroids clone.



41 MCAD

Release your Amiga's potential as a powerful CAD (computer-aided design) workstation. Design anything from a capybara to a coypu and view your creation at any angle.

42 AMIGA SPELL

Remove those embarrassing spelling misteaks with this excellent spell checker. Any file that conforms to the ASCII standard can be given a good check up.

42 ICONISER

Most disks are full of files that can't be run or even seen from Workbench. Unless you venture into the depths of the CLI, you might never know that these files exist. Iconiser will automatically tag icons to all 'hidden' files.

42 ZOING!

Format loves fun and frivolity. And this program is more frivolous than most. No clues as to what it is, but you can bet it's not a C compiler. Zzzzzzoing!.

WE'RE PAYING £800! FOR GOOD SOFTWARE ON OUR COVER DISK

We're looking for good quality software to fill our cover disk each month. If you're a nifty programmer you could earn big bucks from your labours – games, business applications, utilities, or anything of general interest.

Turn to the end of this section for more details on how to get your software onto the Format cover disk.

DISK

THE FULL VERSION

Flying Shark for the ST costs £24.95, and is published by Rainbird and was due to be in the shops on 7th December. A version for the Amiga should follow in due course.

SHAREWARE

The Amiga program Slideshow is the first shareware product we have used on our cover disk. Shareware is Public Domain with a difference – you can freely copy and distribute shareware but if, after evaluating it fully you feel it is useful then you are asked to send a donation to the author. He will often send you back a more up-to-date version and printed documention.

Please read the Slideshow documentation file for details of the author's address. He lives in the States but even so we would urge you to do the decent thing and send him some money – only if you find his program useful though.

ST

First, copy and load the disk as described at the end of the Disk Extra section.

FLYING SHARK

The complete first level of Firebird's newest winner

All Colour STs – joystick needed
Folders: AUTO
Files: HSC_0, HSC_1, HSC_2, HSC_3, LEVEL1.MAP, MODULE.BAK, SPRITES.CRU, PRIME_SW.PRG

Dagga-dagga-dagga-dagga... Bandits coming out of the sun, Red Leader! Go back to those good old bucca-

AMIGA

First, copy and load the disk as described at the end of the Disk Extra section. These programs run on all three Amiga models. We have been unable to test them on the early version of the Amiga 1000.

COSMO

Shareware – see margin note
All Amigas. Joystick or keyboard control.
Files: COSMO, COSMO.DOC

It's classic games time again on the cover disk this month. We've already had versions of both Space Invaders and Pac Man on past cover disks, so you can add to your set with a version of the all time classic *Asteroids*. Several versions of Asteroids can be found within the Public Domain libraries but we at *Format*, vowing to bring you nothing but the best, have found what must be one of the most impressive versions available.

The plot behind the game has been lost over the years in the depths of space but the aim is clear. Your task is to clear a path through an asteroid field while avoiding the splinters of rock that erupt from exploding boulders. A mere trifle of a task for even the most inexperienced of space pilots, but on this mission your actions do not go unnoticed. Hidden within the countless rocks live a hostile alien race that does not take too kindly to anyone obliterating their homes. The aliens throw everything they have at you (kitchen sink and all!) in an attempt to stop the destruction of the humble asteroid field they call home.

If you have a joystick, plug it in and get going. Otherwise you'll find that Z rotates you left, X rotates you right and the full stop key lets an asteroid have it right between the eyes. If destruction is inevitable as

neering days of biplanes and tracer bullets, blasting ammo dumps, tanks and railway depots to kingdom come.

Firebird have taken up the challenge of converting Taito's coin-op smash for the ST, and it looks pretty addictive. You're the pilot of the legendary *Flying Shark*, and it's your mission to despatch squadrons of enemy fighters as you battle through behind the lines to wreak havoc.

You don't need much briefing before your mission starts – if it moves, shoot it. You've got the entire first level to go thruogh, complete with three lives to protect you. Your flight path will take in lakes, jungles, deserts and all manner of hostile terrain.

Using your joystick you can move around the screen blasting away. Squadrons of marauding enemy fighters will descend, and the fire button will do for them with a single hit. Exterminate a whole formation and you'll qualify for a bonus or extra weapon.

Below you are ground attack emplacements, like tanks and anti-aircraft batteries, or ships if you're over water. One hit on these will disable them, two hits will net you the points for a kill. When you get near the end of the level you'll see the main enemy base. Tanks pour out to repel you – blast them to the great minefield in the sky, then keep pumping hot lead into the base and it'll eventually crack open.

As for the end-of-level guardian... well, you'd better find out for yourself. Don't say we didn't warn you though.

Getting going

Things just couldn't be simpler – just reset your ST and put your copy of the cover disk in the drive, and Flying Shark starts automatically. Don't be alarmed by the psychedelic colours that flash on the screen, they're only a side effect of our file compression system.

You can also run Flying Shark from the GEM desktop – click on the PRIME_SW.PRG file in the AUTO folder. If you want to copy the demo to another disk, make sure you copy all the files named at the start of this description.

HISTART

By M. Langley
Mono STs Only
Folder: HISTART
Files: HISTART.PRG, ICONBAR.DAT, HISTART.DOC

While the ST's high resolution screen may not be the ideal medium for a budding Van Gogh, displaying only mono images, it does have the advantage of being of a much higher resolution than all ST colour paint packages. And as anyone involved in computer graphics will tell you, a higher screen resolution means a higher level of detail.

HiSTart (Hi ST Art, geddit!) (*get on with it – Ed*) is a feature packed paint package for mono STs that includes many of the features you would only expect to find in top-notch art packages. Even if you don't own a mono monitor, HiSTart will work fine with the Mono Emulator featured on issue 2's cover disk.

The full list of features offered by HiSTart are too numerous to list but among the most notable are drawing lines by rubber banding; cutting and pasting of blocks; variable brush sizes; and a multitude of different fill patterns, to name but a few. A further advantage of HiStart is that all pictures created within the program can be loaded for further work in any high res paint package that supports the Degas file format.

To load HiSTart, double-click on the HISTART folder to open it, then double click on the HISTART.PRG icon on the Desktop. Further information on the ins-and-outs of HiSTart is available in the HiSTart folder. To see the documentation, double-click on HISTART.DOC.

COMPRESSION RATIOS

Because of the staggering amount of data crammed on to the ST side of this month's disk, there are a few points worth mentioning.

All .PRG files – which are the ones you double-click on to actually do something – have been run through a data compression program to save space. What this means is that when you run any program, the first thing it does is uncompress itself as it loads into memory, and you will be treated to five seconds or so of lurid hues. Don't be distressed by this – just sit and wait and the programs will run normally.

Unfortunately there has been no room for our usual menu program. We thought you'd rather have the space spent on more programs than unproductive menus. Please read the 'How to use this disk' last page of this Disk Extra section carefully, particularly if you aren't used to using GEM.

MONO EMULATOR

On issue 2 we gave away a Mono Emulator program to allow ST owners with colour monitors or TVs to run high resolution software. If you've only recently discovered the delights of Format, you'll be overjoyed to know that you can still buy back issues at their cover price, which means issue 2 is a bargain at £2.50. Write to: ST Amiga Format Back Issues, Future Publishing, The Old Barn, Somerton, Somerset TA11 7BY.

rocks head for you on all sides, the Space Bar hyperspaces you to a random position on the screen, but use this with care – the hyperspace fields sometimes destroy your craft.

Thrust is '/' or ',', the [Tab] key pauses the game, and [Esc] quits. You get a bonus life every 15000 points.

Where methods of loading Cosmoroids is concerned, you are spoilt for choice! If you boot your Amiga with the *Format* cover disk, Cosmoroids will automatically start. Cosmoroids can also be executed from the CLICK_ME menu program or by clicking on its own asteroid shaped icon on the Workbench. Further instructions are available within the Cosmoroids drawer.

MCAD

Public Domain
All Amigas
Files: MCAD, MCAD.DOC, DEMO.CAD

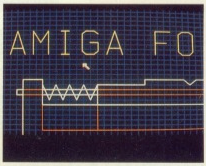
Only just within the last decade or so has the personal computer made a serious impact on Industry. But now, with the advent of powerful graphic based workstations, designers in every aspect of Industry are using Computer Aided Design systems for anything from a simple plastic jet fighter to shiny multi-million pound ketchup bottles (*Sorry, a slight computer error there – Ed*).

Most computer graphic packages regard what is displayed on the screen as a flat, 2 dimension image made up of pixels. The package only knows what pixels are on and off and what colour they are displayed in. A CAD package is an *Object Orientated* program. This means that the image displayed on screen is stored by the computer as a series of shapes – eg. 'rectangle with top left and bottom right points this and that'. When a particular point is changed in some way, any lines joining it to other points are automatically adjusted accordingly. Phew!

MCAD is an excellent example of a Computer Aided Design package that puts at your disposal some very powerful features indeed. The program works on a system of graphic 'primitives' such as lines, boxes, circles etc, and these primitives are used to build your final image. As with most things PD, experimentation is the key.

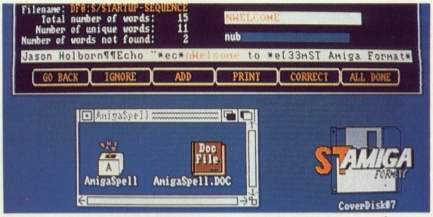
You can use mCAD by either loading it directly from the Workbench by clicking on its icon, or alternatively it can be loaded from our cover disk menu. MCAD tends to use a rather large amount of memory therefore on an A500 you would be best advised to run it from the Workbench icon rather the menu program. To give you an idea of what mCAD is capable of, we've included a demo file on the disk cunningly titled *DEMO.CAD*. You can load this demo file by selecting 'Load' from the Project menu and then entering DEMO.CAD for the filename. Full instructions (15K of them!) are available within the mCAD drawer.

MCAD always uses an interlaced



screen for its display. This packs loads of detail on, but can flicker annoyingly on monitors without long-persistence phosphors. You might like to experiment with the 'Modify Colours' option on the 'Colours' menu to find a combination of foreground and backround that suits your eyes.

humour. Let's examine the evidence: the words 'enough' and 'though' will serve as an example. Both have the same last four letters but they are both spoken entirely differently! Surely 'Enuff' and 'Thow' makes a lot more sense! With a language that is riddled with such blazing inconsistencies it's



AMIGA SPELL

Public Domain
All Amigas
Files: AMIGASPELL, AMIGASPELL.DOC

The English language is a funny ol' game! Whoever originally devised it must have had a warped sence of hardly surprising that people make spelling mistakes. If you think that 'Enuff' looks a lot more correct than 'Enough' as spelt by the rest of the universe then AmigaSpell is for you.

As you may have already guessed (oh you are clever!) AmigaSpell is a spelling checker program. The program takes a standard ASCII text file and checks the spelling of all words within the file against those contained within its own dictionary (called a 'glossary' within the program, for some strange reason). If it finds a word that it does not recognise it suggests a possible spelling as well as allowing you to correct the word manually. If the word is correctly spelt but AmigaSpell doesn't know about it then you can choose to have the word added to the dictionary for future reference.

Although AmigaSpell works fine from our cover disk it is advisable to copy the AmigaSpell drawer onto a separate blank disk. This is because the dictionary file – which starts off at around 9000 words – will soon grow to a size where it can no longer be held on the cover disk. To copy AmigaSpell, drag the AmigaSpell drawer icon onto the Workbench RAM disk icon. Once all disk access has finished, remove the cover disk and insert your blank, formatted disk. Now open both the RAM disk and your blank disk then drag the AmigaSpell folder from the RAM disk over into the blank disk window.

Full instructions on the use of AmigaSpell are available within the AmigaSpell drawer.

ZOING!

Public Domain
All Amigas
Files: ZOING, ZOING.DOC

When was the last time we had a truly silly program on the cover disk? We at *Format* feel that it's about time we brought a little bit of light-hearted and pointless fun to the cover disk again. *Zoing!* is a fun little program that is best left for you to discover; it'll be more fun that way!

You can load Zoing! either from the cover disk menu program, CLICK_ME, or by clicking on the ZOING! icon on the Workbench. Once the program has loaded, trying clicking on the Zoing! window bar and see what happens! For the cautious-minded, full details are available within the Zoing! drawer.

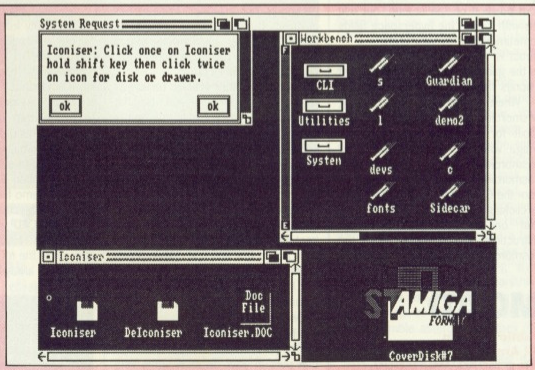
ICONISER

By M. Saunby
All Amigas
Files: ICONISER, DEICONISER, ICONISER.DOC

One of the things that Amiga users accustomed to GEM-type machines such as the ST and Mac often find most annoying is the way icons are handled by the system. On an ST, *all* files are automatically assigned a standard icon which means that no files are hidden from the user. With the Amiga however, a file only appears on the Workbench if it has an associated icon file.

Creating icons for hidden files is an art that only a privileged few have mastered, but with Iconiser you too can create icons automatically for those mysterious hidden files. Iconiser searches through a disk locating all files that do not already have an icon file. Once a hidden file is found, the program examines the file to find out whether it is a directory, program or a data file and it then proceeds to create an icon of the appropriate type.

To use Iconiser, first copy it to your RAM disk by dragging its icon from the cover disk to the RAM disk icon. Now close the cover disk



windows and eject it from the drive. Insert your mysterious hidden files disk. To set the wheels of Iconiser rolling, Open the RAM disk, click on the Iconiser icon and while keeping the [Shift] key depressed, double click on your hidden files disk. Iconiser will then start doing its stuff.

If you're baffled by that last paragraph then full instructions are available within the Iconiser drawer.

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Any game not released will be sent on the day of release.
These are mail order prices only.
CASTLE COMPUTERS THE COMPETENT MAIL ORDER COMPANY

ST

FSEL

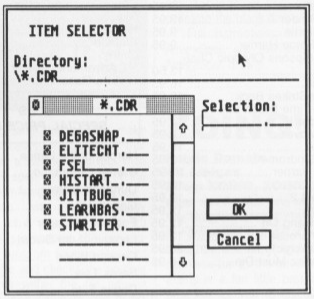
Public Domain
All STs
Files: FSEL.PRG, FSEL.DOC

FSEL is a neat litle utility which modifies the standard File Selector requestor box that all GEM programs use.

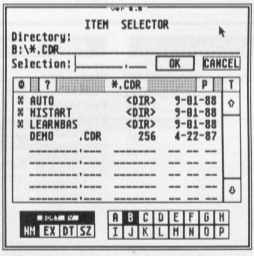
Whenever you ask to Open or Save a file, normally a box pops up listing all the filenames on the current folder. You can change folders or disks, but that's about it.

When FSEL has modified things, you get a new all-singing, all-dancing box. As well as the humble directory directory display, you'll see many new icons. You can switch to a new drive just by clicking on the drive letter box – no more clicking on the pathname line and typing `B:\*.*`. You can ask for your directory display to be sorted by name, by size or by creation date. You can display a file's size or creation date, and finally you can print the directory out for future reference.

The only complication with FSEL is getting it to run. You must have it in the AUTO folder of the disk you start your ST up with. This is because it makes a modification to GEM at boot time which can't be made later on. Once you've dragged the FSEL.PRG file to your AUTO fiolder and rebooted, all GEM programs will gave the new menu. Simplicity itself!



▲ *Before running FSEL...*



▲ *The ST's file requester after FSEL has done its work*

ELITE CHEAT

By M. Hall
All STs
Files: ELITCHT.PRG, DEMO.CDR

Fighting your way through the hierarchy of space traders can be a tough life. There comes a time when no matter how persistent you are and how powerful your lasers, those space pirates just keep on coming, and a honest trader will eventually feel the need to resort to more devious means. *Elite Cheat* is a program written for anyone who has ever had one of those days.

Elite Cheat, as the name suggests, is a cheat program for those of you who are struggling with Firebird's conversion of the 8-Bit classic, Elite. The cheat works by modifying a saved game, so you can keep those master disk write-protects firmly open. The list of features includes allowing you to change your rating, add or remove equipment and reward yourself with over 20 million credits. Surely more than enough for any self-respecting Cobra Mk III commander.

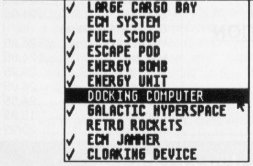
To use ELTCHEAT.PRG

■ Your ST must be set in Medium or High resolution. Then double-click on the ELITCHT.PRG icon.

■ The first thing to do will be to select the 'Load Commander' option from the 'File' menu. When the selected commander has been loaded, the other menu options will become active.

■ Now select the equipment that you desire from any of the item menus. You will also notice a couple of items that are not commercially available. It is also possible to grant yourself an unofficial loan, increase your score, change your status back to clean, boost your rating to E-L-I-T-E, or any other level for that matter.

Once all the desired changes have been made, select the 'Save Commander' option from the File menu. When you have saved your modified commander file, just load it into Elite in the usual manner, and enjoy the luxury lifestyle of a well heeled commander.



HAVING TROUBLE WITH THE DISK?

We have done our best to check that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs.

If your *ST Amiga Format* disk is faulty – and out of 40,000 duplicated some are unfortunately bound to be – you should send it back for a free replacement to:

ST Amiga Format January Disk, DisCopy Labs, 20 Osyth Close, Brackmills, Northampton NN4 0DY.

AMIGA OWNERS: if your Amiga refuses to accept the disk, try using the DISKDOCTOR utility on your Commodore Workbench disk to rescue it before sending off for a replacement. We covered DISKDOCTOR fully on page 93 of Issue 1. Don't worry if every track gives you a 'hard error', this is the Amiga being unable to read the ST software on the disk.

HOW TO USE THIS DISK

The *ST Amiga Format* cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please read these instructions carefully or you could permanently damage your copy of it.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal disk-to-disk copying methods, as recommended in the Amiga and ST manuals, won't work. Instead you will need to format a blank disk and copy the files individually. Don't panic, this isn't at all difficult.

ON THE ST

(assuming a single drive machine)

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A: drive icon to open up the (blank) contents window.
3. Now drag the icon for drive B: into the open window of disk A. This will copy all the files one by one off the master disk to your new disk. *Make sure that the master ST Amiga Format* disk is write protected (the sliding tab should be back so the hole is open) and put it in the disk drive when asked for disk B.
4. You will now be prompted at various times to insert disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST! Disk B should be the master disk, disk A your newly formatted copy.

If you want to cut down on disk swaps, you can use the Eternal RAM disk program provided on this month's disk as an intermediate step.

ON THE AMIGA

(assuming a single drive A500)

1. Start your Amiga up with your normal Workbench boot disk.
2. Take a blank disk and initialize it in the usual way.
3. *Make sure that the master* ST Amiga Format *disk is write protected* and put it in the disk drive. Double-click on the disk icon that appears. Drag any icons you see in the contents window onto the 'RAM disk' icon.
4. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double-click on the RAM drive icon to open its window, and drag program icons from that onto the new disk icon. This copies the files one by one.

The programs may not all fit in the RAM drive at once on an A500 – do whatever will fit, then after step 3 delete them from the RAM disk by clicking once on each and, holding the right mouse button down, selecting discard from the Workbench menu. Repeat steps 2 and 3 for the rest of the icons.

USING THE PROGRAMS ON THE ST

When you turn the ST on and put your working copy of the disk in the drive, you will see a window opened with the contents of the disk displayed.

This month we haven't had room for our usual friendly menu program – we've packed the space with sizzling software instead. However, using GEM's standard Desktop you should be able to navigate your way around. Every program that you can run has a name ending with .PRG – everything else is a data file or something that programs use indirectly but you don't need to worry about.

To run the Flying Shark demo, just reset your ST and it will automatically start.

To run any other program, look at the list of file names at the top of its description in this text. Find the .PRG program on the screen and double-click on it. If the utility is in a folder (you can tell because a folder name is given in the list as well) then first you should double-click on the folder icon to open it, then find the .PRG file and click from there. If a program doesn't appear on screen, make sure you have checked all the window, particularly if you have a low resolution display – click on the scroll bars to move around the whole area. If all this GEM talk confuses you, have a quick read of your ST's manual.

Most of the .PRG files have correspondingly named files ending in .DOC. These are the documentation files which give you information about how the program works and what to do with it. Before you run a program, double-click on its .DOC file and click on 'Show' in the requester box that appears – the text will then be displayed on screen.

Please note the special instructions for running FSEL, given in the main body copy.

ON THE AMIGA

Most of the programs on the cover disk are run from the Workbench, which must be loaded first from your normal start-up disk, as described in the Amiga manual. Once at the Workbench, put the ST Amiga Format disk in the drive and double-click on its icon to open it.

You should find on the disk an icon for a program called CLICK_ME, do exactly what it says and after a few seconds our cover disk menu program will have loaded. If you own a single drive Amiga then your machine will prompt you to swap disks a couple of times before the menu is loaded. Just follow the on-screen requesters and everything should load fine.

Most of the programs on the disk can be executed from CLICK_ME by selecting them from the menu and choosing either to view the program's documentation or load the program. If a program fails to load from this menu (this sometimes happens through shortage of memory on unexpanded systems), you can load it from the Workbench instead, by clicking on its icon.

To load a program from the Workbench, you must first Click open the drawer which contains it. For detailed comments from the program's author click on the .DOC file icon in the same folder; to run the program click on the main icon.

When you click on a documentation file, a new window is opened and the text is displayed a screenful at a time. Press any key to move from one screenful to the next, or click on the close gadget in the top left-hand corner of the window to cancel the display. The READ ME icon gives you a brief summary of the disk's contents and how to use it.

DISK DOCUMENTATION

Many of the programs on *ST Amiga Format* disks are Public Domain. In such cases we've simply passed on their standard documentation files unchanged, as is required by the PD code of practice. Some of the phrasing is 'idiosyncratic', shall we say, so please don't blame us for misspellings!

WE WANT TO GIVE YOU MONEY!

If you've got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. Here's how to go about securing international fame for yourself:

1. Only send in programs on 3.5" disks; we cannot accept printed listings.

2. Make sure your disk is clearly labelled with your name and address and the program name(s), and is marked 'ST' or 'Amiga'.

3. Make sure there's a documentation file on the disk called READ ME.

4. Enclose a clear covering note explaining what the program does, and if you possibly can please also send a printout of any on-disk documentation files. Remember your address and telephone number. Include a stamped return envelope for the disk if you want it back.

5. THIS IS IMPORTANT: there must be a signed statement that the program is yours and that you are prepared to assign publication rights to ST Amiga Format. Use the following wording:

The program/s (write the title here) is/are submitted for publication by* ST Amiga Format *magazine. It is my own work and has not been submitted for publication elsewhere.

Signed ...

If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will evaluate all submissions in a batch once a month, so please allow up to 40 days for return of your disks. *We will only send back disks with adequate return postage and packing.*

6. If you send us a disk with a virus on it, we reserve the right to send round the heavy mob in the small hours and do unspeakable things to your pet Coypu. Seriously, since we've already supplied Virus-killer programs (in Issue 1), do check your disks very carefully.

NEWS

SCREENPLAY

What a cracking month it's been – after all the hype, both Thunderblade and R-Type burst onto your screen as the Christmas Format Golds. MARK HIGHAM provides the acid-free guide to New Year ST and Amiga entertainment, starting with a preview of the months ahead.

PREVIEWS

PURPLE SATURN DAY

INFOGRAMES ■ ST & Amiga
£24.95 ■ Out by January

Once a year, when the skies of Saturn turn purple, the inhabitants of the neighbouring planets come together for the Galactic Olympiad, and you are chosen to represent your purple-skinned brethren. *Purple Saturn Day* incorporates four different games from the Ring-Pursuit to a Time-Jump. In the Brain Bowler you must rescue an exploded brain by connecting the different circuits and re-routing the pulse. Lots of great graphics and sound effects look certain to make this a worthy successor to the infamous *Captain Blood*.

INCREDIBLE SHRINKING SPHERE

ACTIVISION ■ ST and Amiga
£19.95 ■ Late January

You're planted right in the middle of Sangfalmadore, amidst the notorious sphere training corps where the deadly Sangfalmadore Run exists. You haven't heard of it? You haven't lived. Ridley (no relation to Nicholas) has become trapped somewhere in the depths of the Run and you have to rescue him. And what are you armed with to defend yourself? – a ball varying in mass and size according to the tiles that you run over. With a decaying path and enemies appearing all over the place you're guaranteed a hectic game.

▲ *JUG*

JUG

MICRODEAL ■ ST & Amiga.
£19.95 ■ Late January

You are an interactive humanoid composed of Titanium Fleximetal and other organic materials. First built in 3642 AD and nicknamed 'Jug' because of your barrel-chested profile, you can transform into many different shapes and reform instantly – handy for avoiding unwanted callers.

Within the living core of the Planet Piraeus is a deadly virus causing it's brain to malfunction and all the inner sanctums to die as the life force diminishes. You must find and destroy the deadly tumour within the deepest parts of the planet, before it becomes an empty shell drifting in the depths of space and time. At your command is a strange intergalactic flea-type creature, which you pilot through a *Menace*-style horizontally scrolling planet filled with lots of odd creatures.

SPHERICAL

RAINBOW ARTS ■ ST & Amiga
£19.95 ■ February

In this latest action/strategy from Rainbow Arts you find yourself endowed with mystical powers as a super-wizard. The aim is to guide your sphere (oh no, not more balls!) through more than 100 different levels, overcoming the usual nasties. Bonus symbols allow you to increase your ability to cast spells.

In no time at all you'll be able to

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ALMOST – BUT NOT QUITE

With 37 ST and 21 Amiga games, we've spent most of the month testing them all out (who said that life as a games reviewer isn't tough?). It's been a hard task picking the two to receive the ultimate accolade, *Format Gold*.

Lots of very hard work and fast talking secured the first 16-bit review of *Thunderblade*, and we thought *R-Type* looked so brilliant that we went all the way down to exotic Southampton to visit the offices of Electric Dreams.

Repeating on us more than a Chicken Madras was US Gold's *1943*. We received four copies of this month, none of which did anything at all apart from displaying a good title screen and crashing. US Gold blamed it on the old Atari ROM's but we still haven't seen a working copy yet. Another US Goldie, *Joan of Arc* was a nice adventure game, but in the end was just squeezed out by the other nine reviews this month.

ST *Menace* appeared too but it's not much to write home about. With poor scrolling, few colours and reduced playability, it was never worth the wait compared to the superb Amiga version. And *iK+* for the ST might have slick graphics and sound effects likely to have you clutching your vitals, but at the end of the day it was one backdrop and lots of Karate foot kicks.

On the Amiga side, Softek's *Garfield* was good, but we're waiting for the next Garfield game, *A Winter's Tail*, before reaching a definitve opinion. *Outrun* was probably almost as bad as the ST version. Also, this month saw the arrival of *Captain Blood* for the Amiga. With great sound effects and lots of sampled speech it was certainly an improvement on the ST version, but was it worth the wait? Probably not. The graphics have changed little and the gameplay remains unaltered. *Trivial Pursuit* offered an unusual scenario with the world in ruins because of the Greenhouse effect (or Conservatory effect if you live in Surrey), but it was still far better as a board game.

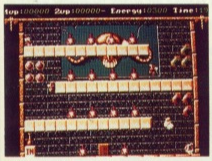
cast spells, control teleports and create stepping stones to the next levels. Ten different sound tracks, lots of hidden rooms and an enormous dragon by the name of Evil all combine to make it a pretty major piece of magic.

THUNDERBIRDS

GRAND SLAM ■ ST & Amiga
£19.95 ■ February

Thunderbirds are go! Grand Slam have acquired the licence to the legendary Gerry Anderson TV series, which is being designed as a four-way scrolling role-playing graphic adventure. Whilst on a mission to rescue two trapped miners from the bottom of a lift shaft, their craft is filmed by Hood – no, not Robin but the infamous arch-enemy of noble causes. His cameras have penetrated the Thunderbirds' film protection shield and made a video of the vehicles. To maintain their anonymity the Tracey family must retrieve and destroy the video.

Lots of juicy emergencies ensue, such as rescuing a nuclear sub before it threatens public health. Grand Slam intend to follow this February release with other Thunderbirds missions.



▲ *They're big and bouncy in SPHERICAL*

WEIRD DREAMS

TELECOMSOFT ■ ST & Amiga
£24.95 ■ Late January

This startlingly original game promises to be one of Telecomsoft's major releases for the New Year. Lying comatose in a hospital bed you drift helplessly into the shifting landscape of the subconcious. Surprise and terror, the real and unreal are all mixed together in a world from which you try to escape. Everyday objects assume grotesque proportions – toys come to life, rose bushes become carniverous, hideous creatures mutate in front of your eyes. Sounds like an episode of Howard's Way, doesn't it? Your mission is to stick your head back on and fight your way back to the world of reality.

TIGER ROAD

US GOLD ■ ST & Amiga
£19.95 ■ Early January

You play the role of Lee Wong and it's your task to rid the land of the evil Ryn Ken Oh (what was that name again?) who has taken to raiding your village and generally causing lots of mayhem. With almost hundreds of levels of karate action and a bunch of unlikely looking enemies the game looks set to satisfy your average karate freak. It's supposedly based on an arcade game but the game was one of those which didn't get around too much. Still, the graphics look brilliant.

FUSION

ELECTRONIC ARTS ■ ST
£19.95 ■ Late January

The long awaited *Fusion* for the ST is due out. Already released for the Amiga, Fusion is one of the classic arcade conversions featuring two-directional parallax scrolling, a multitude of different levels and impressive digitised music. The ST version of Fusion promises to be faster than on the Amiga, with more enemies and harder levels.

The objective of Fusion has changed very little from its Amigan days. You have to dash around 13 levels collecting nine pieces of a bomb and return them to the first level. All great fun if you're into bomb disposal.

THE PARANOIA COMPLEX

MAGIC BYTES ■ ST & Amiga
£19.95 ■ Early February

▲ *Can you bear the guilt of PARANOIA COMPLEX?*

Do you trust your computer? *Really* trust it? Paranoia reigns supreme in this game from *Magic Bytes*. Your job is to eliminate those citizens who have become powerful enough to be dangerous to the computer. Along the way you have to perform all sorts of essential bodily functions such as eating, going to the great white telephone, and engaging in personality tests. Realism enters a new phase. And remember... just because you're paranoid doesn't mean they *aren't* out to get you

▲ *TIGER ROAD*

▲ *Catch the INCREDIBLE SHRINKING SPHERE before it vanishes*

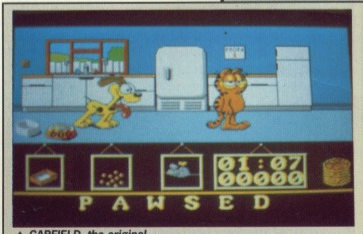
▲ *PURPLE SATURN DAY*

GARFIELD – A WINTER'S TAIL

SOFTEK ■ ST & Amiga
£19.95 ■ January

The original Garfield game was a great success and version II looks set to be even more fun. It makes a change from your average kill-everything-that-moves-and-avoid-the-exploding-mines diversion.

A Winter's Tail is in the same style as its forefather but incorporates lots of separate games. With plots ranging from chasing a Xmas pudding, lots of Easter Bunnies and a Valentine game, Garfield looks to be with you all through the start of '89. (*What a horrible thought – Ed. Jes' kidding, Garfield fans!*).



▲ *GARFIELD the original.*

REVIEW

THUNDERBLADE

FORMAT GOLD

US GOLD

Amiga – Reviewed. Joystick. £24.99

ST – Imminent. £19.99

Westland – home of the attack helicopter and home base for covert Heseltine operations – is the sort of place which regularly turns out the likes of the Thunderblade helicopter. Given that this advanced machine boasts all the latest weaponry, it's a pretty daunting task to be told that you're the one who's got to fly it – especially when your girlfriend is complaining about your eyes going a strange square shape and your fingers have taken to jumping up and down even when they're not clutching a joystick. Still, you'll take up the gauntlet, won't you?

▲ *Where did all these giant stalactites come from? Taking the Thunderblade out on a sunny day is great, but keep your fingers poised over the old fire-button. This game is all about fending off attack by enemy warfare and you're the one who's got to do all the fending.*

AIM

The lush green fields of America (OK, so they're grey pavements really) are under threat from the marauding rebel forces of a merciless and unforgiving dictator, General Swindells. Put more simply, he is a Gadaffi clone with a trident missile and a stars and stripes pair of underpants.

With lots of battle weary troops rapidly acceding to the superior power of the rebel's sophisticated weaponry it is only a matter of time before the government is overthrown. The top brass from U.S.G.H.Q. have summoned you to their office and told you to vanquish the enemy. Easy innit? You're let loose on the world with the ultimate flying machine – the Thunderblade. This advanced attack helicopter is at your disposal but can you take the world by storm and live to reap the benefits of mega-herodom?

◀ *Here come the big boys. I knew I should've packed an atom bomb. Somehow things don't look altogether fair here...*

◀ *Massacre isn't all it's made out to be. With four lives still remaining it's better luck next time.*

STRATEGY

The mission is split into four strategic stages which become progressively harder. From the daunting walls of skyscraper city through mountains and deserts, then a river delta and into a refinery. Each of these phases is subdivided into three different levels. These consist of an overhead view of your purring 'copter as you fly through cities, viewed from the exhaust jets of your machine. The third phase charts your progress as you fly over a tanker. Being a religiously accurate arcade conversion, this phase runs at a pretty slow speed, making it harder than ever to survive attack from the enemy forces.

Assaults on your physical well-being range from conventional forward-shooting planes to cannons with a nifty knack of firing flame balls up at you to blast you into oblivion with barely a quiver of their snouts. A range of views of your Thunderblade from different angles keep the game surprisingly addictive. At the end of each of the three stages your score is totted up and bonuses are awarded depending on your performance – not an altogether brilliant ego boost.

As for self defence, Thunderblade is equipped with two types of advanced weapon systems. A rapid-fire Chain Cannon used for aerial targets such as enemy helicopters and aeroplanes sounds like something out of Rambo part 94, with much the same effect. It's only really effective when used against flying subversives but boy, does it leave a lasting impact. You can only shoot two missiles at a time but they are about as efficacious as the explosion of two tons of gelignite on an oil refinery. Straight line air-to-ground missiles take care of your land and sea targets – they are scattered like high-velocity confetti all the time your finger is held down on the fire-button. It takes a rapid blast on the old fire-button to eject the lethal Chain Cannons.

The game begins with five reserve helicopters and comes to an end when all of your helicopters have been destroyed or the last stronghold has been taken by the evil Swindells. Scores shoot up every time you destroy anything vaguely resembling an enemy, which ain't too difficult since there's nothing out there which is your friend – even the infernal skyscrapers are quick to turn your amiable little Thunderblade into a jigsaw puzzle if you get too close. An extra helicopter is awarded with every 20,000 points. Since 20,000 points isn't any major achievement the bonus helicopters appear quite often and come in extremely handy when your lifespan looks to last about as long as a herd cattle somewhere within a five-mile radius of Chernobyl.

▲ *This hero kick isn't all it's made out to be*

GRAPHICS AND SOUND

When you're soaring above the landscape scattering missiles left, right and centre it's easy to forget that there are lots of skyscrapers and innocent people hanging around down there. This has got to be a good sign. The graphics look brilliant with good explosions whose only fault is that they occur too often.

Descending onto the top of skyscrapers as a method of seeking sanctuary from the flame-throwing tanks is possible but make a miscalculation and you soon explode into lots of flames and smoke. If you approach the skyscrapers when you're below roof height, each storey becomes alternately black or grey as it disappears off the top of the screen. So much for realism.

But there are few other faults. Takeoff looks good from overhead with your Thunderblade gradually increasing in size as it rises like a battle-stained Phoenix into the air – tentative, and not entirely sure that it finds war such a great pastime. With tanks, aircraft and lots of generally offensive beggars hanging around everywhere, the whole game becomes a myriad of fast paced-action and lots of good graphics.

In the rush to the presses *Format* had to make do with a version lacking any sound effects. However, having listened to the digitised music which will go onto the final game as well as all the spot effects, the sound will keep Thunderblade alive with vibrant activity.

▲ *Scattering your missiles during an airborne massacre*

▲ *Life's tough*

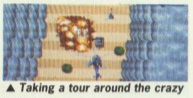
▲ *Level four – skyscraper city. The end view of your Thunderblade comes in pretty handy when you've got to attack a legion of enemy tanks*

▲ *Aw shucks! That wasn't supposed to happen*

▲ *Not exactly the object of your desires*

▲ *But it looks like a worthy target*

▲ *Holy smoke!*



▲ *Taking a tour around the crazy canyons*

CONCLUSION

Thunderblade is more than just another shoot-em-up. The twelve different levels are filled with enough graphical variation to keep you struggling to get further and further through the game. All the great arcade action has been left intact. Occasionally it becomes slow at times but this in no way detracts from the gameplay. Trips over the sea-faring battleship are designed to go especially slow. This might obey the arcade versions but it causes infinite hassle when you've only got one life left and you're about to kiss the nostrils of an oncoming formation of the latest fighter jets as they perform their rendition of aerial *Bolero*. It wouldn't matter but they've decided that you should play the bull.

still graphics
0 1 2 3 4 5

moving graphics
0 1 2 3 4 5

soundtrack
0 1 2 3 4 5

lasting interest
0 1 2 3 4 5

overall 92%

R-TYPE

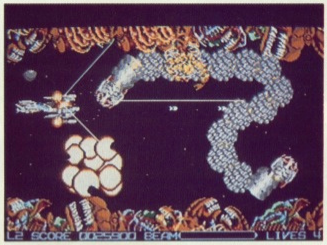
FORMAT GOLD

ACTIVISION-MEDIAGENIC

ST – Joystick. 2 disks. £19.95. Reviewed.

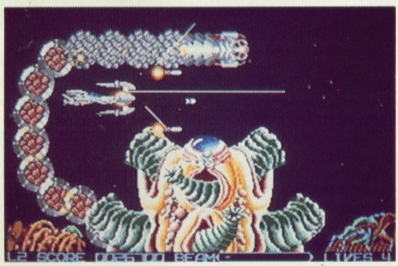
Amiga – Due late January. £24.95

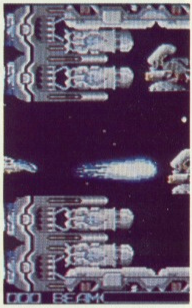
Once upon a time in the deepest and darkest depths of outer-space – about where you turn left just after passing Pluto – you come across an ugly little place proudly named the Bydo Empire. It might sound like one of those run-down seaside cinemas, but despite being filled with hundreds of gyrating creatures they're actually about as friendly as Freddy from *Nightmare on Elm Street*. 'Who gives a damn?' would be most people's opinion, but you're the one who's got to go out there and show them that Bruce Springsteen isn't the only person who likes to be known as The Boss. Can you summon up the courage to wander into the Bydo Empire? Are you at heart a brave soul armed with a fighting spirit? Or would you rather curi up with a database?



◀ *Shooting the Insuru with multi-directional firepower can be great fun...*

but it's the Gomada that you really need to eye up. ▼





▲ *Hold down on the fire-button and you can release one hell of a snowball.*

▲ *The horizontal-scrolling shoot-em-up. At its best in R-Type.*

AIM

Being in control of a powerful R-9 craft charged full of awesome firepower sounds like a pretty responsible job, but you can handle it. Honest. Out to conquer the Earth is the evil Bydo Empire with all its weird looking inhabitants whose very appearance inspires fear – if you thought Cilla Black was ugly then forget it, these guys are worse!

Your R-9 must be used to crush the enemy forces and keep the world away from the sticky tentacles of Bydo. This simple task is accomplished by wandering through the horizontally-scrolled Bydo Empire and firing at everything that moves. The main weapon with which your plane comes equipped is a beam cannon. Holding down the fire button increases the output energy of this destructive beast but a whole arsenal of firepower can be built up by shooting one of the enemy craft, affectionately known as a POW AMA. Firing at these will reveal jewels which give you up to six different weapons granting everything from protection orbs to multi-directional firepower.

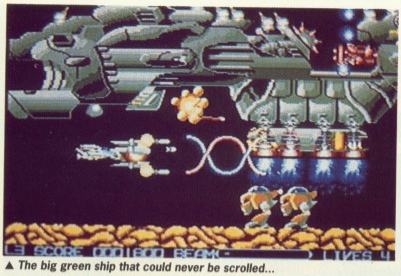
The first jewel you collect will release a special weapon entitled The Force – presumably of *Star Wars* fame. This can be attached to the front or rear of your R-9 fighter and sent ahead to clear a path for you, or sent behind and used as a rearguard. By repeatedly acquiring new laser units the Force will grow, granting you greater firing power. With two units the Force will shoot slanted beams in two directions. Three units will cause the Force to shoot slanted beams in the same two directions as well as up and down giving a total of four rays. Watching this lot as they rebound around the screen almost gives you eye-strain when things begin to get hectic.

STRATEGY

The R-9 fighter has a magpie-like obsession for collecting jewels. The different lasers obtained on collection of these jewels make the whole game worthwhile. Dispensing a myriad of colourful and shapely laser beams which have a tendency to destroy the enemy forces keeps your eyeballs glowing as one explosion follows another but get hold of a few of the lasers and you'll think you're in the middle of firework celebrations.

In each level there is one incredibly impressive and daunting monster. And guess what... yup, you're the one who has to defeat it before you can complete the level and proceed onto the next stage. These loving little enemies include the Insuru – a snake-like creature resembling one of those ugly beasts from *Aliens*. Instead of making a nest inside someone's stomach he's gone inside the Gomada – an evil heart-shaped creature with a single eye which looks like it needs a massive dose of Optrex. You can only destroy him by firing a laser directly into his eye whilst it's open, but since he's protected by the Insuru this is no easy task.

There are eight levels to complete, each one filled with hundreds of different monsters all after your blood. If they don't head directly for you then they're sure to dispatch missiles bound for your R-9. Life in the Bydo Empire looks pretty helpless and with just three lives at your disposal the future can soon seem horribly gloomy – especially when you come up against a giant battleship determined to turn you into a candidate for the blood-wrecked filming of 'The Blue Max'.



▲ The big green ship that could never be scrolled...

▲ ... aim in the right place...

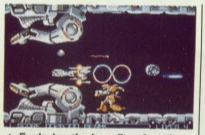
▲ and it disappears behind enough orange flames to send your eyeballs rolling.

▲ This has got to be the ugliest-looking creature in the entire Universe. What on earth could it be?

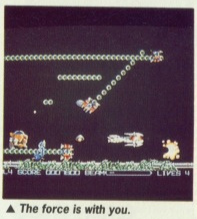
▲ The Dobkeradopus might bear a very strong resemblance to your much-loved Aunty Mildred...

▲ but if you're going to get anywhere in this game then you'll have to show her that you're the one who's in control of the reflection lasers.

▲ That's more like it. This is what she gets when she gives you a pair of orange socks as a Christmas present. Revenge is sweet!



▲ Exploring the benefits of anti-aircraft lasers. So who's that guy in the flared trousers?



▲ The force is with you.

CONCLUSION

Annoyingly, you're returned to the beginning of a level every time you die. This doesn't do much good for your progress through the different levels even if it is faithful to the arcade game. Responsive movement and addictive gameplay are what keeps the shoot-em-up an ever popular game – R-Type's got both, but it's the graphics which set it aside from the rest. They look absolutely amazing.

It'll take hours of play learning all the strategic moves essential for surviving the different problem areas, which is why the games is so damned addictive. You'll need the old matchsticks to keep your eyes open through the too-short hours of night if you're going to get anywhere near level eight.

GRAPHICS AND SOUND

To say that this is a good arcade conversion would be a mistake – it's a brilliant arcade conversion – probably even better than its forefather, certainly with far more action. All this and it doesn't eat up silver coinage during play.

Everything moves smoothly, and the enemies actually look like enemies instead of the usual brand of quivering jelly blobs. Given a few hours play you'll be waking up in the middle of the night with nightmares. Where the game really takes off from all the other horizontal scrolling shoot-em-ups is in the size of the sprites which are manipulated. The monsters towards the end of each level aren't just the size of a marauding ant – they take up most of the screen and they move pretty fast. The Dobkeradopus has a tail which lashes round the screen ferociously struggling to destroy you. It's an impressive beast which takes a hell of a lot of fire-power if you're going to make any sort of impression on it.

But by far the best graphical effect is the massive green ship in level three. Programmers *Electric Dreams* have done a superb job on the scrolling routines. Surviving this level is made ever more difficult because you must manoeuvre yourself around the ship in order to avoid being crushed by its oppressive weight. If you succeed in destroying it, the whole thing vanishes behind so many orange flames that you think you're in the middle of the Handsworth riots.

Sound effects have not been forgotten either. Bearing in mind that the game is using the ST's sound chip then the different tunes are impressive. They soon get pretty monotonous after a while but there's the option to switch to sound effects instead.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 96%

REVIEW

LIVE AND LET DIE

DOMARK

ST – Reviewed. Joystick or mouse. £19.95 | Amiga – Imminent. £19.95

Your name is Bond – James Bond. M has given you the top secret mission: "Find Dr. Big and don't come back until you have." It's time for you to take the world by storm and wreak chaos across the waterways.

GAMEPLAY

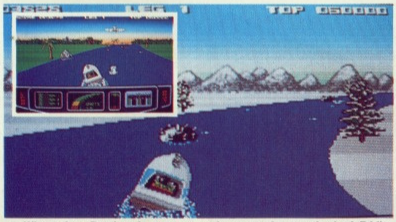
Dr. Kananga – or Dr. Big as he is known to his few friends – is the sordid Prime Minister of San Monique, a pokey little island in that den of Bond iniquity, the Caribbean. Dr. Kananga is instructing the people on the island to produce massive amounts of poppies – not out of a sense of loyalty on Remembrance day reason but so that he can be really generous and flood the US drug scene with loads of free heroin.

Armed with Q's latest gadget – the fastest speedboat ever made – you take to the waterways to find and kill Dr. Big. It's your duty to put an end to his depraved deeds, making the world a safer place.

What with incredible speed and four different waterways in areas ranging from the frozen ice-fields of Norwegian Fjords to the baking deserts of the middle-east, you can soon end up questioning your sanity. When it's up to you to risk life and your best pair of electric-blue boxer shorts then you prefer to let the Americans get on with it.

Along the route you must pick up fuel barrels to make sure that you have enough to survive your mission, and occasionally a CIA helicopter will fly over you and drop packages containing fuel and missiles. In between dodging giant mines and avoiding attack by land-based gun emplacements you must pick up the packages. This is no easy operation when you're travelling at top speed with your finger pressed down on the fire button scattering all your enemies to the four swampy corners of hell.

▲ *The CIA get everywhere these days*



▲ *Winter fun, Bond style – not exactly up to the standard of Eddie Edwards but given a few near-misses it's not far off. (inset) On the way to Dr. Big's for Sunday lunch.*

GRAPHICS AND SOUND

This is one hell of a game for counting how many times you can clock the old speedometer – push the joystick forward to its limit and watch the world start whipping by at super-fast speeds. Undergoing assault by a host of impressive backdrops becomes a lot of fun until you realise that those funny little black specks in the distance are really mines waiting to blast you into oblivion. It wouldn't matter but at full throttle they descend upon you faster than Roger Moore can raise an eyebrow.

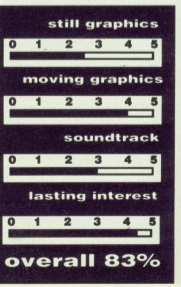
Racing through the water is accompanied by lots of white foam which does actually look like wash instead of the usual outbreak of snow. Even the epidemic of helicopters and enemy aircraft which regularly appear on the scene don't just look like flying whales. With lots of tunnels and gates spread across the waterways everything soon starts to get pretty difficult.

Sound effects aren't exactly brilliant. The classic Bond theme tune is sadly lacking, although the superb film score courtesy of Wings does decorate various menu screens. Unfortunately it isn't Paul McCartney in the background singing his lungs out, but instead you're restricted to a pretty dire computer imitation of the original, plus lots explosion sounds during play.

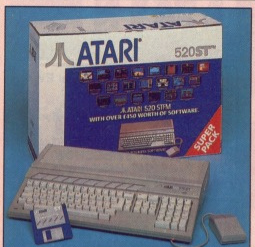
CONCLUSION

This is an impressive action game. With lightning speeds and realistic rocks, mines and other obstacles the game soon becomes an addiction you'll not want to give up. The only real criticism is the scarcity of the fuel barrels. Miss a couple in a row and then you're unlikely to get much further.

At the end of the day, although *Live and Let Die* doesn't bear any resemblance to the film plot apart from a watery setting, it's full of fast-action and blistering graphics. You might never manage to meet Mr. Big but you'll have lots of fun along the way.



520ST-FM SUPER PACK



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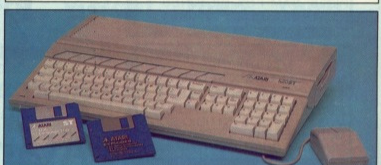

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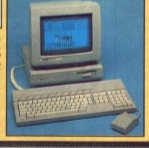

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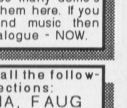

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HUNT FOR RED OCTOBER

Amiga

When your nuclear drive shuts down, around day seven, you'll have to keep surfacing to recharge the batteries. It is very easy to run them dry while underwater, in which case you're stuck.

But, if you do this, you can become unstuck: save the game immediately when the drive packs up, load the saved game and switch to nuclear drive. You should be able to complete your journey using nuclear drive.

Simon Robbins
Spalding, Lincs

DALEY THOMPSON'S OLYMPIC CHALLENGE

Amiga

Better results are obtained if you use specific shoes for certain events:

Day 1 Training – training shoes; 100m – running spikes; Long jump – long spikes; Shot putt – long spikes; High jump – flat shoes; 400m – running shoes.

Day 2 Hurdles – short spikes; Discus – half spikes; Pole vault – track shoes; 1500m – track shoes.

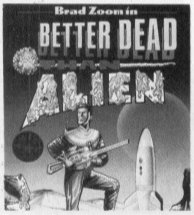
Use Lucozade for 400 metres and 1500 metres (assuming you can only get two cans during training). To get lots of points in the 100m event, run like mad until you're just about to cross the finishing line; wait for about three minutes and then cross.

Bobby Simpson
Edmonton

BETTER DEAD THAN ALIEN

ST & Amiga

If it looks as though you are going



to get hit by bombs or aliens, press [Esc] (to pause) and move your ship to a save zone on the screen. Press N to continue with the action.

Iain McKie
Stoke-on-Trent, Staffordshire

LEISURE SUIT LARRY IN THE LAND OF THE LOUNGE LIZARDS

Amiga

One of the many possible solutions:

Call a cab and go to chemists to buy a condom. Wait outside for a bloke and give him what he wants (swap it for his knife). Call cab and go into bar. Buy whisky. Go and visit drunk through door near juke box. Take rose and give him whisky to get control. Go to the toilet and take ring. Go to padded door in bar, knock and say "Ken sent me." Turn telly on with control and change channel seven times. Go up and do your stuff. Remember safe sex is the best! Take chocs. Go out window and down fire escape. Take hammer from bin. Go to casino. Look out for a man selling apples; get one. Go in and gamble (save game when you win and restore when you lose). Get loadsamoney. Go to ashtray near lift. Get pass from it. Go to disco. Dance with girl. Give her chocs, ring, and rose. Marry her (next to casino). Go to suite. Listen to radio. Call people (phone near chemists) and order champagne. Do your stuff! Go back. Get free with knife. Take rope. Go to fire escape and tie rope to rail and waist. Climb over rail. Smash window with hammer. Get pills. Go to floor eight in casino. Give girl pills. Get in lift. Give girl in tub apple.

Benedict Frank
London

FLIGHT SIMULATOR II

ST

And you thought there couldn't possibly be anything more to say about this game. Think again. Do the following:

- Make sure all controls aren't altered from the defaults.
- Swap to the Learjet.
- Turn slew on.
- Press key Q and keep it down until you see the altimeter needles rotate in opposite directions. The large needle will rotate clockwise and the small needle will move anti-clockwise.
- Keep Q down for another 20 seconds and then slow down, using A, until the needles are stationary.
- Turn slew off and let the plane free fall straight down.
- Put the power on with the mouse or key 9.

Now sit back and marvel as runways pass you in mid air!

If you're interested in seeing famous places around Frisco, then set your sights on these locations:

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Finally, do you know the proper name for an armadillo? Well, actually it's *Dasypus Novemcinctus*. And did you know that it belongs to the Edentates family, which means the toothless ones! Would you believe that some modern tribes purposely scare armadillos so that they can play catch – armadillos roll into a ball when frightened.

Andrew Jackson
Liverpool, Merseyside

ELITE

ST

Type in SARA when asked for the code. Enter the correct code from manual when asked for the code a second time. Press a key to get to the 'Load new commander?' prompt. Hit N. Press the asterisk (*) on the keypad to get into the hack screen. This allows you to alter any details regarding you and your craft's status. Simply enter any number between 0 and FF (yes, it's in hexadecimal, but don't worry about this as you don't need to understand how the counting system works) when confronted with 'Change byte number?' Simply enter a number between 0 and FF to plonk into that location. After finishing your edits press [Esc] to continue with the game. Try the following alterations:

Byte	Value	Effect
1F	01	Fuel scoop
20	01	Escape capsule
23	01	Energy bomb
24	01	Energy unit
26	01	Docking computer
28	01	Galactic hyper drive
31	01	ECM jammer
32	01	Cloaking device
34	03	Cargo hold
7C	01	Unhappy refugees
80	01	Document
84	01	Fugitive
85	01	Offender
8B	01-08	Mostly Harmless to Elite

B Deng
Basildon, Essex

Use this technique to buy whatever you want, in whatever quantities, from a planet: Say you want to buy narcotics and find that the traders only have 10 tons to sell; buy the 10 tons, save the game to disk and then load the saved game. You will discover that you have 10 tons of narcotics in your hold, and the traders will have another 10 tons for sale.

Raymond Boff
Hillingdon

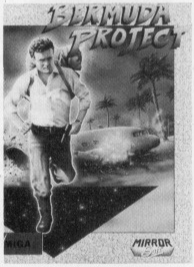
BERMUDA PROJECT

Amiga

Follow footprints straight away up to jeep. Get in the jeep, take the bucket, shovel and canteen. Go straight back to the crash site. Pass the plane. Fill the bucket with sea water and douse the flames.

Dig sand away from the hatch with the shovel. Get the crowbar. Go to pilot and get the radio.

Walk west to the caveman village. Get the glider. Fly east. Use the radio when flying over river. Find plane. Use the crowbar on the crates. Get fuel. Free stowaway. Fill canteen. Get lighter. Fly back to jeep.



Use the lighter on Scorpion. Get key. Fill jeep with fuel, use the key to start it and drive North East. Smash the gates with the Jeep. Drop all, and then pass through the gates.

Take both dolls back outside gates. Detach the needle from the wax girl and attach it to the Voodoo doll.

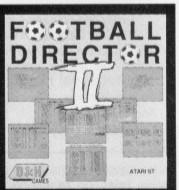
Walk north, then east. Take the empty pistol from the ship. Point the pistol at the pilot to make him leave.

Stephen Henry
Eltham, London

FOOTBALL DIRECTOR II

ST

Save a game and make a note of the money in your bank account. Quit the game. Load an ASCII text processor – ST organiser, Protext or something similar – and load in the saved game file.



Go to the end of the document and move to the eighth line from the bottom. If you look around, you will spot figures coinciding with your bank balance. Simply change this to what you want. The line below, which also contains your old bank balance, should also be suitably modified. Save the updated file and exit the word processor.

Go back to Football Director and load the hacked file. You will discover that you have a very healthy bank account; with the money you can buy better players and make ground improvements thus pushing up the share price of the club.

Paul Monks
Havant, Hants

ST DISK HACKS

We've had many, many wonderful disk cheats for Elite; Mark Hall's is by far the slickest. By double clicking on the ELTCHEAT.PRG file on this month's cover disk, you will be presented with a typical GEM application – everything being accessed via drop down menus.

From the File menu select LOAD COMMANDER. Once the file has loaded, you can alter a multitude of options: Lasers (military, pulse mining, etc), Equipment (ECM jammer, retro rockets, docking computer and so on), Status (clean, offender or fugitive), Rating (harmless to elite) and Credits (as much dish as you want).

Simply point and click at the features you want. Save the file and run Elite. Load the hacked file when prompted for a new commander file. For the really lazy, there's a TEST.CDR file which gives all major items.

DUNGEON MASTER

ST

The deeper dungeons:

In dungeon 10, there's a corridor which goes round in a circle. To get past it, walk around throwing things at the wall. When an object disappears, turn around and walk back the way you came and you will find yourself in a different location. Keep doing this until you find your way out. Near the steps, which lead down from this dungeon, there's a door. Enter it. On the wall there's an eye. Take on object and click it on the eye to open a secret passageway. Enter and you're transported to the Ruby-Key. The key must be used in the Tomb of the Firestaff.

In dungeon 11 there's a Ra key and the master key (used to open the Firestaff door). Go downstairs with both keys. Go to the Firestaff – you should be able to open all the doors with the Ruby-Key – and open the door that says "Enter with caution." Search around and you should find a button. Go down the passage that appears and carefully check the left hand side. There's another button there, press it and go back to the first button, and nearly you should discover another door. Open it and enter. On one wall there's an altar with ash on it, beneath which is a key. There's also a button located in the room; press it to get a Ra key and scrolls. Four doors can be opened with the ash key. Behind each one is a magical item. Use the Ra key – found in the altar room – to open the door with the star shaped keyhole. Explore behind the door to find the Firestaff (it is behind the back door which is opened with the master key).

Go back to the level with the wizard to find yourself in the Dragon room. Under a pile of ash is a key. Pick it up, but be careful of the dragon. Behind the door in the dragon room is a power gem. To free it from the spell use ZO+KATH+RA+XXXXXXXXXX. This produces a crystal with which you can touch the gem. Go up the stairs to the room with the wizard. Surround the wizard with a flux cage. When you are absolutely sure he is completely surrounded, invoke a fire. The wizard dies, and the quest is over.

Robert Stanley
Stalybridge, Cheshire

WINNERS AND THINGS

Game Busters needs you! If you have tips, hacks or maps for any ST or Amiga game then send them in. Share your knowledge with other enthusiastic 16-bitters. Come on! It's well worth the reward – a selection of the latest fabulous games. Don't wait around. Send your dodges to: Game Busters, ST/Amiga Format, 4 Queen St, Bath, BA1 1EJ.

Winners this month are: MARK HALL who receives a special prize for his terrific ST Elite cheat program; B DENG for his incredible Elite game editor discovery – ST games flying his way; SIMON ROBBINS for his findings in Hunt for Red October – Amiga goodies will be sailing in his direction.

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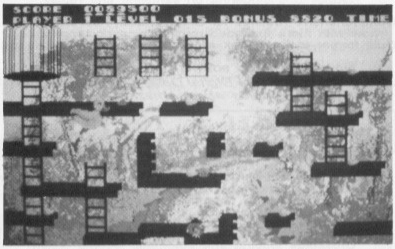
REVIEW

CHUCKIE EGG

PICK & CHOOSE

Amiga – £19.95, Reviewed. Joystick / keyboard.

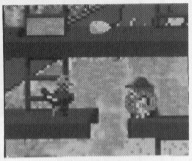
ST – £19.95. Due any day.



▲ *Take the chicken-house by storm and show these bird-brains who's boss*

Free-range eggs get everywhere. In the good ole days when they were confined to the Beeb, thousands of games players were poised in front of monitors with fingers arched over their keyboards, eagerly guiding Hen House Harry as he ran around collecting eggs. Now the 16-bitters can indulge themselves and grin as their high-scores go through the roof and their brains become increasingly scrambled.

With 32 levels and 12 eggs per level, the game lends a whole new meaning to egghaustion. The object is to pick up all eggs without getting pecked to death by the ducklings or their mother. Cock it up and you explode into a yellow mess and end up as a fried-egg. The Amiga version has been lovingly adapted from the 8-bit days with lots of impressive backdrops



▲ *Egg-head!*

added and a musical accompaniment which sounds brilliant to start with but will soon have you turning down the volume.

So who's this Pete guy anyway? What gives him the right to fill the top-ten positions in the high-score table? One of the biggest annoyances is that you can't save the high-scores from Hen House Harry's dubious exploits to disk. When you've spent until two in the morning gathering eggs and turning your joystick rusty with oceans of sweat, you wake up to find that Pete has obliterated all your scores! It wouldn't matter but he can do it while the computer is switched off.

This game may never rival *Starglider II*'s graphics or compete with the sounds of Mortville Manor, but it'll probably outlast both of them. It has the addictive qualities which keep you coming back again and again. In no time at all you'll be voting for battery hens – gathering eggs sure ain't easy.

still graphics 2.5
moving graphics 3.0
soundtrack 2.5
lasting interest 4.5
overall 75%

RETURN OF THE JEDI

DOMARK

ST – Reviewed. Joystick. £19.95

Amiga – Out soon.

Return of the Jedi is one of the few computer game licences which actually looks like the original film. The action begins at the point where the rebel forces attack the Imperial Deathstar, and is divided into different levels which you must complete if you're going to overcome the forces of evil. Throughout the game you control several different members of the Jedi crew; beginning with Leia you must to race toward the Ewok village. Judging by the way the Stormtroopers chase after it's a certainty she's wearing *Impulse*. You can either blow them up or lead these ugly fellas through a trap. The first person past one of these escapes unhurt but anyone else perishes.

Other levels include taking command of Chewbacca who is having great fun manoeuvring a scout-walker. Along the way you must avoid all manner of objects from rolling logs to catapulted stones. Once Chewbacca gets to the bunker, Han Solo blows it up, deactivating the protective shield surrounding the Death Star and providing a lead into the next level.

The game must be one of the fastest scrolling shoot-em-ups around. Unlike the majority, scrolling takes place in a diagonal direction on all the screens giving an unusual view of the gameplay. But for all its speed and addictive qualities the game doesn't have the graphical imagination to make it a winner. Leia may well be steering the speeder bike but who can tell? She looks like little more than a speck of blue fluff against a patterned background – realistic enough to have you yawning. The quality of the sound effects varies – an opening sequence of sampled sound and speech gets you into the mood for tackling an onslaught of Stormtroopers but the traditional Star Wars theme and explosion effects after this point definitely won't tax your computer too much.

still graphics 2.5
moving graphics 3.5
soundtrack 3.0
lasting interest 4.0
overall 72%

▲ *With level after level of super-fast scrolling you're soon going to be wishing for a guiding hand. May the Force be with you.*

GALACTIC CONQUEROR

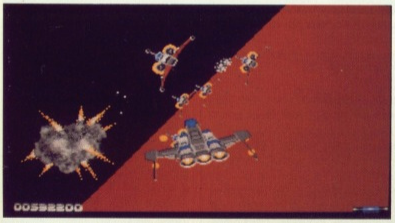
TITUS

Amiga – Reviewed. Joystick. £24.99

ST – Due any day now, Joystick. £19.99

At the end of the day, when President Bush leans back in his leather-bound chair and sighs as if he's got the entire world nestling in his toupée, you know it's time for you to take command. He might claim to be striving for world peace but who really gives a damn when Gallion is under attack and it's the foremost duty of the Stellar League to engage in galactic fights just to preserve peace?

▲ *Select somewhere to go*



▲ *Got here! Well shiver me timbers, this isn't the sort of place to bring a Sunday picnic.*

GRAPHICS AND SOUND

This isn't just another vertical scrolling shoot-em-up. With everything coming at you in startling 3D you'll soon be wondering whether enemy spacecraft really do look like giant Tarantulas. Fortunately speed isn't sacrificed to accomplish this perspective phenomenon.

An option to double the size of your spaceship is available. If you make the most of this then you don't get to see much of the oncoming space debris until it hits with full force – a bit like Government policies – and the game slows down quite a lot, but considering the size of the sprites hurtled around the screen it's a pretty impressive option.

The sound effects won't have you connecting your Amiga to a hi-fi. With an Arctic wind gusting around the panting galaxy you soon begin to question the health of your Solar System. Blasting offending spacecraft might sound fun but it's accompanied by what sounds like a little man in the computer calmly shouting out 'Pow!' – not an altogether realistic sound-effect!

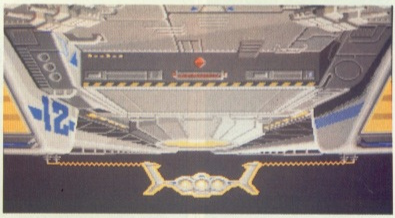
GAMEPLAY

The Stellar league was created in order to protect the planet Gallion. You, with your Galactic Fighter *Thunder Cloud II*, must annihilate the enemies of peace who abound throughout the galaxy. If you accept this mission then you will receive ten million dollars – not that it'll be a lot of use to you since your destruction is inescapable.

The game opens with a map of the galaxy which charts the progress of enemy invasion as the little beggars near Gallion. The intention is to prevent invasion by selecting enemy planets and, um, invading them. Once you've decided on a planet, you're abruptly deposited into the midst of battle. Sounds fun? Having to cope with mines, probe-robots, missiles and meteorites as well as the usual prescribed dose of enemy ships is no small task.

You encounter three different phases of battle – ground, aerial and space fights. The ground fight is the only one not to include enemy ships but no such luck with the other levels. Space-fighting can have you encountering the Imperial Enemy Ship as it goes from planet to planet, delivering the devilish troops. Destroying this awesome creation is almost as difficult as locating a brain-cell somewhere between the editor's earholes (*You're fired – Ed*). But if you manage to survive you are awarded an extra bonus.

Your ship can be destroyed as often as you like because the game runs until the enemy descends upon Gallion.

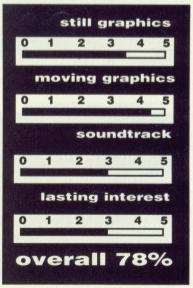


▲ *Space-travel can be a pretty electrifying experience*

CONCLUSION

If you really want to experience total annihilation then this is the one. It's like bombing down a motorway and watching an idiot in a screaming yellow Escort come tearing round the corner at over a 100mph going the wrong way in your lane – you know you'll be obliterated in the end, it's just a case of how long it'll take and whether it's going to hurt.

If you can survive the psychological strain of becoming a pilot for the Stellar League, and your bank account can handle an injection of $10m then by all means proceed.



BREAKING THE TAPE

944 TURBO CUP v's LOMBARD/RAC RALLY SIMULATION

TURBO CUP – LORICIEL

RALLY SIMULATION – MANDARIN

Amiga – £19.99, Reviewed. 1 or 2 Joysticks.
ST version £19.99.

ST – £24.95, Reviewed. Joystick.
Amiga version £24.95.

Bombarded by trapeziums of grey tarmac might not be everyone's Sunday fun, but it sure beats the hell out of being attacked by the local Klingons chapter. In the fight for race supremacy we tested two of the best racing games to vroom into the Format office.

▲ *The riotous roads of the Rally Simulator.*

▲ *The trials and turbulations of Turbo Cup.*

▲ *You call this a crash? – looks more like a flood to me!*

▲ *The Rally Simulator in action – mountain driving was just like this in the Bond movies.*

GAMEPLAY

A choice of tracks at your sweaty fingertips and more curves than Cyril Smith ensures you're guaranteed the race of your life in either game.

In Turbo Cup you start by selecting a track and then hit the tarmac for a qualifying session. One lap round the course determines your start position on the grid.

Rallying is rather different, and Lombard/RAC Rally features a variety of inclement weather, from fog to night-driving, together with three stage types, including an impressive mountain track. The object of the rally's 15 stages is to win enough to pay for repairs and keep your car in prime condition. Beating lap-times reaps rewards but wealth can be further increased by entering a quiz game. If you want to race, you must first complete all 15 stages against the clock. You can then complete them all again, but in competition.

GRAPHICS AND SOUND

Unless you're used to watching 1930 Hollywood movies, you're unlikely to gaze in wonder at the colours on screen. Roadside graphics in the Rally Simulator could have been designed on a 4-bit machine – they have all the imagination of Joan Collins' new novel.

The graphics in Turbo Cup are marginally more inspired, though your opponents all drive cars which are an odd shade of orange. Should you hit anyone at speed you go tumbling round and round and erupt into a penny-pinching breath of blue smoke the identical shade as your car. This is a spectacular event when compared to the crash routines of the Rally Simulator. Bump into a tree and up shoots white rubbish supposedly reflecting damage to the bonnet.

CONCLUSION

Racing games aren't the greatest innovation since Armadillo toupees, but they're always popular. Both strive for realism but in the end it's the Rally Simulator which gets closest. The roadside bushes which look like dead brains won't have you spellbound, but at least you're looking through the windscreen instead of the usual backside view of a Tonka toy. Unfortunately, you only have to teeter near the road edge to crash into a tree. This becomes painful when faced with a set of corners punctuated by so many crashes you soon wonder if it's your brain whizzing along the roadside.

Turbo cup

still graphics 4.0
moving graphics 3.5
soundtrack 3.5
lasting interest 3.5
overall 70%

Rally Sim.

still graphics 3.5
moving graphics 2.5
soundtrack 3.0
lasting interest 4.0
overall 80%

INTERNATIONAL SOCCER

MICRODEAL

Amiga – Reviewed. Joystick. £19.95 | **ST – Already available. £19.95**

Here we go, here we go, here we go... Where? Hundreds of soccer games have sailed off to that great football pitch in the sky but is Amiga Soccer here to stay? When the socks are down what makes it any better than the rest?

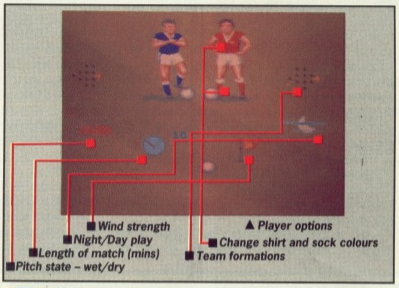
GAMEPLAY

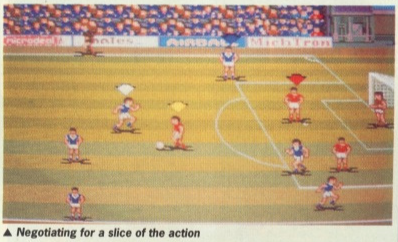
With two 12 a-side teams and options to decide everything from wet or dry pitch states to wind strength and night play, the game soon becomes a great challenge. In addition to the usual player-vs-computer option, you can attach a 4-player adaptor which allows control over several team members at once. This permits competition against either the computer or a multi-handed octopus who doubles as a friend – the 4-player widget costs £5.95 extra.

To change the player under your control you press the fire-button with the joystick targeted on the lucky person. An arrow above the designated player then shifts around to other team members currently on screen.

Pressing the fire-button with the ball in your control allows you to kick. The longer you hold down the button, the further and harder your kick will be. Hold it down for a full second and you'll think you have a tennis ball on the end of your foot. To tackle, you press the joystick button without having a player sighted under the cursor. If there's a throw-in or a corner, the action waits until you press the space bar so giving you time to move your team into the right positions.

There are nine levels of difficulty when you're playing against the computer – these make the difference between crucifying or being crucified. The former is far more fun.





▲ Negotiating for a slice of the action

◀ Give me the Klingons any day – there's more violence here than in an entire series of The Sooty Show

GRAPHICS AND SOUND

Running with the ball might look realistic but it's about as super-fast as a classic sprint by a snail. However, given that the task of controlling twelve players on a scrolling pitch is a fairly mammoth one, Microdeal have handled the problem fairly smoothly. Tackling lacks inspiration but running around the pitch is well done – at least the players actually look as if they're running. With the 'wet pitch' option a quick change in direction results in slip-ups to rival even some of Neil Kinnock's.

The three different tunes included in the game are inspiringly uninspired, but with the option to replace music by sound-effects the game improves vastly. Cheering crowds can then pass comment on your action – not an altogether wise opportunity if you value your pride.

CONCLUSION

Brilliant game, enhanced by a few amusing faults – players have this weird anatomical structure which lets others walk straight through them! The computer opponent option is great when your friends are too busy picking their noses to pop round. Grinding the computer into the turf is easy on lower levels where the goalie has a brain the size of a boot stud.

Amiga Soccer might lack the off-field tactics of *Football Manager II* but the adaptor for four players almost resolves the problem of representing a team game on computer. Effective graphics sequences make it realistic although you can't help feeling that things might have been improved by having the spectators regularly invade the pitch and start eating the grass. Who said that football was just a game?

ST v AMIGA

The goal-keeper fault in the ST version has been resolved with the Amiga – players can't wander up to the goalie and blindly kick the ball at the chap forever. The graphics are identical but it is the four-player adaptor which really separates the two games – no such option is available in ST Soccer.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 70%

REVIEW

PIONEER PLAGUE

MANDARIN

Amiga – Reviewed. Joystick. £24.95 | **ST – No version planned**

When you can see more colours on the top of a Shredded Wheat packet than in a computer game then you know there must be something amiss. Given that it took Hollywood thirty years to make use of the magic of colour then it's hardly surprising that your average game is still confined to blue skies or black space. Pioneer Plague is making a pilgrimage to the colour palette, proudly claiming to be the first ever 4096 colour game.

GAMEPLAY

The Pioneer Probe Mk IV was created to solve Earth's over-population problems. It runs around finding uninhabited planets and terra-forming them so that they're ready to be colonised. Sounds like a great idea? It might have been. A genetic defect in the Mk IV meant that it no longer creates environmental variety – which is a way of explaining the fact that all the game's planet surfaces look identical – turning everything into a large paving slab. Nicholas Ridley would certainly approve.

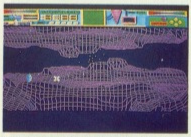
With the Mk IV now out of control, it just nukes all planet life without testing to see if it's inhabited. This causes untold problems for the poor little chaps who've just hung a 'No Place Like Home' picture over the hearth.

It's up to you to prevent the spread of the Probes. The Lifestar will take you around the Universe but the airship is your attack vehicle. By selecting a planet with Pioneer Probes in the vicinity, the Lifestar will whisk you away to a sub-Euclidean space zone. The quicker you cruise through here the fewer probes you'll need to total when you get to your clobbered planet.

Once through, you're into Legoland where you run around blasting away four types of robotic adversaries. These include 'Boxers' – nasty little creatures who trap you in a box with ever-decreasing sides until one of you gets destroyed. At any time you can dispatch a programmable drone to go out and destroy the devilish robots. Once a planet has been cleared it's back to the map to select somewhere else to take your Sunday picnic. When all the planets have become infected your mission is over and it's better luck next time.

▲ *In the control room where the whole world awaits your decision.*

▲ *Boxed by a boxer – he's more offensive than the tree which hit Frank Bruno.*



▲ *Sub-Euclidean level – it's no wonder this place is uninhabited – everyone would fall through the holes!*

GRAPHICS AND SOUND

Pioneer Plague uses the Amiga's bizarrely named 'HAM' (hold and modify) graphics facility to exploit the entire spectrum of 4096 colours available. HAM graphics are nothing new – they've appeared in lots of painting and drawing packages, but their use in games is a revolution. HAM graphics require a great deal of processor time because of the range of colours used. This is bad news for games which are notorious for demanding a great deal of speed from the computer.

Although 4096 colours might sound like a great idea, they only appear on the host of title screens – the action scenes are forced to use more conventional graphics. Apart from that, there is the grand sounding Sub-Euclidean level, which really gives an effective impression of speed. With lots of true stereo sound effects cropping up all over the place as well as digitised speech Pioneer Plague is a pretty impressive game.

CONCLUSION

The Amiga's assets have definitely been pushed to the limits here. 4096 colours and true stereo sound doesn't crop up on too many games even in these hi-tech days, and an ST version would seem very unlikely. The gameplay doesn't really resemble the avowed plot too well but lots of good effects keep it interesting. Whether it will stand the test of time is debatable – for all its flashy graphics it lacks the addictive qualities of its less colourful ancestors.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 78%

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As above but for DCE Equipment	£9.95
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23 W D Socket - 9 way D Plug (Amiga/NEC Multisync Monitor (Analogue RGB 'I')	£10.95
23 Way D Socket - 9 way D Socket (Amiga/Philips 8873 TTL RGB 'I')	£10.95
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ST/Printer (Centronics)	£9.95
4 Way Anti Surge Socket 13A With trailing lead inc 13A plug	£14.95
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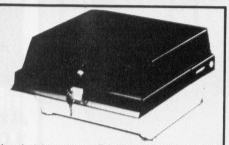

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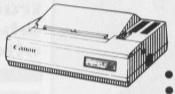

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ST 13 pin din mon. plug + 2m of cable £4.50 ST 13 p/d plug with 2m cable all pins connected	£6.50
ST 13 p/a mon. plug to two Phono plugs (comp video needs internal modulator	£5.50
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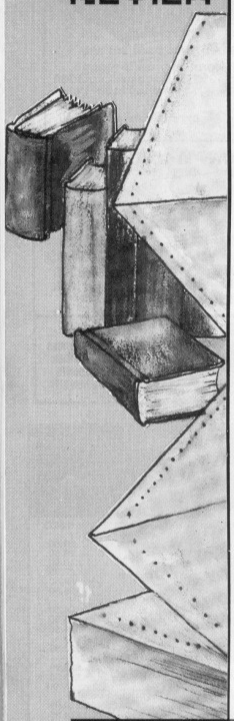
REVIEW

BUSINESS PARTNERS



Atari have just begun offering 1040STs bundled with a complete set of business software – Microsoft Write, Superbase Personal and VIP Professional, to be exact. Too good to be true? PAT WINSTANLEY sees whether the trio really does offer you the ideal start.

THE DATABASE: SUPERBASE PERSONAL

Precision Software ■ usual price: £59.95

The most important feature of any program intended for the home (and probably inexperienced owner) is that it should be easy to use with plenty of on-screen help available. Superbase Personal certainly satisfies these criteria, despite its acknowledged power and sophistication. At the simplest level of name and address storage, the program couldn't be more comfortable.

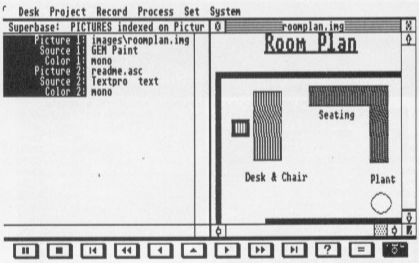
Using a combination of menus and video-recorder lookalike control buttons, all mouse selectable, files can be customised and searched in a twinkling. And if you find that your chosen format is not quite suitable in practice it can easily be modified without losing the data you have so laboriously entered.

Data is stored in the usual way, each file consisting of individual records which in turn consist of a variety of fields. Chosen fields are indexed allowing fast look-up of individual records like the index of a book.

The whole file can also be displayed on screen in three forms – Form, Table or Record view – and will show as many or few records as you wish. Records can also be selected according to preset qualities, such as all addresses with a London postcode.

That is the simple side of things. But Superbase is a full 'relational' database and as such allows you to have more than one file open at once, and even sort data on different levels (eg first by name, then by age if there were any conflicts on names). Above all, the system is always fast and easy to use.

A very useful feature is the ability of the program to handle graphic records, allowing you to set up a picture database through its external file management system. The names of external files can be stored in a



■ *Superbase Personal can store picture files in its database – a novel and handy feature*

SUPERBASE

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

for

- Can include picture in data
- Record format can be modified
- Simple, self-explanatory controls
- Relational database facility

against

- For the serious business user, lacks programmability

WHAT USE IS A DATABASE?

As a personal tool for getting yourself organised, the scope for a database is enormous, from Christmas card lists to cataloguing your collection of Guatamalan folk records. Think of the system as a giant notebook in which you jot down all those scraps of information which normally end up floating around on different bits of paper. The beauty of a database is that you can let the system do all the sorting and digging needed to find that one bit of information you jotted down somewhere last year.

For business use, a database not only acts as a fast-retrieval filing system, but most programs also allow data to be exported to other applications such as word processors. Data handled in this way can then be incorporated in stock requisitions, mail-shots, batch invoicing etc. With a little thought a database file could even be the basis of your annual accounting procedures.

Superbase file and the external files themselves (which may even be on a different disk) may be displayed using the system's indexing and searching facilities.

The program comes with a variety of demonstration files including pictures and addresses and the manual contains several step by step tutorials suitable for both newcomers to the database concept and old hands too.

Although Superbase possesses far more power than the average home user would normally need, it's always nice to have extra power available, especially when the first level of the system is a doddle for the novice.

THE SPREADSHEET: VIP PROFESSIONAL

VIP Technologies ■ Usual price: £149.95

VIP Professional is an integrated spreadsheet program which can work partly as a database and graphing program as well as following the Lotus 1-2-3 industry standard.

The program offers a giant 8192 row by 256 column spreadsheet. It also allows PC-format Lotus 1-2-3 files to be imported and exported. Control of the program is by a combination of keyboard and mouse with many commands available from either the menu or the function keys. An extensive help file is available on screen and the manual is clear, simple to use and very informative – just the thing for the novice.

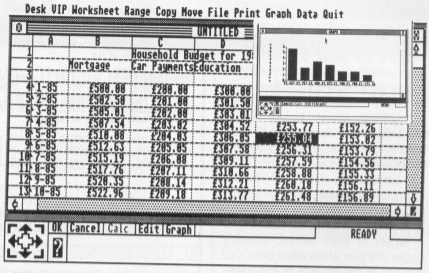
The screen display normally shows seven columns by fifteen rows, but column width can be adjusted to squeeze more in. Individual cells are selected either by clicking on to them or using the GOTO command. You can use multiple windows to allow two sections of the spreadsheet to be viewed simultaneously.

Cell contents can be absolute values, simple variables or complex calculations and the program allows a formula to be copied to another cell while automatically adjusting variable names in the process.

Calculations can be performed on single, or whole ranges of cells simply by specifying the area involved and it is easy to set the equations so that changing one absolute value results in the recalculation of the entire sheet.

Results of calculations can be displayed in a variety of graphical forms such as column or line graphs and pie charts. Titles can be added to graphs to provide necessary explanation to impress the bank manager.

Editing is quick and simple with insert and delete options offering



■ *VIP Professional telling you how it is, both conventionally and (inset) as a bar graph.*

both individual cell facilities as well as cell ranges and also entire columns and rows.

The program offers some unusual and powerful built in formulas such as @NPV(Net Present Value) which save you the hassle of working out very complicated expressions. Also available are the usual mathematical and statistical functions.

Keyboard macros allow sequences of keystrokes to be allocated to a letter thus saving time energy and errors when repeating regularly used complex commands.

In addition to normal spreadsheet facilities, VIP Professional also offers rudimentary database operation with search sort and statistical analysis readily available.

In short, the program omits little if anything required by the casual user yet at the same time allows newcomers to plunge straight in and produce results

THE WORD PROCESSOR: MICROSOFT WRITE

Atari UK ■ Usual price: £149.95 ■ Needs two drives

"Why don't you write this review using *Write*..." wheedled the editor. So here we go.

The first thing noticeable about the program is its speed – or lack of it. Because you have to use the GEM GDOS system to access the different fonts the system is painfully slow.

The editing system is clumsy and awkward. For instance with a choice of both Backspace and Delete buttons on the keyboard you would expect to be able to use both. Not on this program. Press Delete and nothing happens at all. Cursor control is also less than satisfactory. When you press an up-arrow key you expect the cursor to move straight up, not

BALANCING THE BOOKS

In days of old when knights were bold and the only money we peasants possessed was a pig and a couple of hens, personal financial management was simple. Nowadays it is all a little more complex to say the least.

If you've ever tried to work out a budget covering several months, attempting to optimise interest on credit cards, loans, bank overdrafts and at the same time still have any hair left, you'll appreciate the merits of a spreadsheet.

Essentially a spreadsheet is a giant sheet of paper on which is 'spread out' lots of little boxes arranged in columns and rows. Depending upon the initial set up the columns may each represent a single month while each row could correspond to an item of income and expenditure. You can add up the rows and columns, or do other more complex analysis, then fiddle the figures to get the results you want!

The job of a spreadsheet is to calculate the results of such questions as "What if I remortgage at a lower rate of interest but have to pay an arrangement fee to do so?" or "Should I leave money in the building society or pay off my credit card?"

VIP PROF.

for

- Industry standard Lotus 1-2-3 controls
- Acts as simple database
- Graphical output
- Good range of specialist arithmetic

against

- Not enough in-depth coverage in manual
- Slow on large sheets

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
0 1 2 3 4 5

detour to the end of the previous line.

However, Write's range of block editing features make life easy when adjusting the overall arrangement of a document. Immediately worthy of note is the Glossary. This allows regularly used phrases to be saved under a keyword, saving typing hassle. When the phrase is required the keyword is typed followed by Control and Backspace (obvious really), and there it is sitting in the document. You can also cut and paste between several different documents.

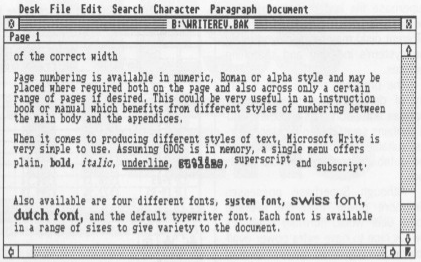
Menu commands are available for a variety of page setups, including Gutter margins which allow extra side margins to the left side of odd pages and the right side of even pages in preparation for binding. Line spacing within paragraphs and even spacing between paragraphs can be altered, and text can be centred, right or left flushed and justified. It is even possible to fill a tabbed area with a leading line of dots.

The document itself can be laid out as a single expanse of text on the page or may be split into up to six equal columns. The columns only appear when printed as the screen simply shows one long column of the correct width.

Page numbering is available in numeric, Roman or alpha style. This could be very useful in an instruction book or manual which benefits from different styles of numbering between the main body and the appendices. Footnotes can also be inserted.

When it comes to producing different styles of text, Microsoft Write is very simple to use. Assuming GDOS is in memory, a single menu offers plain, bold, italic, underline, outline, superscript and subscript. Also available are four different fonts: System, Swiss, Dutch, and Typewriter, the default. Each font is available in a range of sizes to give variety to the document.

Overall, Microsoft Write is a good tool for preparing short documents such as personal mail but for more serious applications its speed lets it down.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B:\WRITEREV.BAK
Page 1
of the correct width
Page numbering is available in numeric, Roman or alpha style and may be placed where required both on the page and also across only a certain range of pages if desired. This could be very useful in an instruction book or manual which benefits from different styles of numbering between the main body and the appendices.
When it comes to producing different styles of text, Microsoft Write is very simple to use. Assuming GDOS is in memory, a single menu offers plain, bold, italic, underline, outline, superscript and subscript.
Also available are four different fonts, system font, swiss font, dutch font, and the default typewriter font. Each font is available in a range of sizes to give variety to the document.

■ *Microsoft Write displaying its selection of GDOS fonts for your delectation*

GETTING IT ALL TOGETHER

With these three packages beside your 1040, all compliments of Atari, it would be handy to be able to take data from one program to use in another. An obvious place to begin is mailmerging, so we'll use a name and address list from Superbase to personalise a form letter composed in in Write.

This proves to be very simple although some jiggery-pokery is needed to progress past the first address.

First, in Superbase you open the address file and type on your name and address data. Using the Export option, save the file disk in ASCII form. Now you need to load it into Write for any final editing and additions.

Spreading it in

You may want to export data from the VIP spreadsheet to Write as well, for example to include a table of figures in a report. This too is relatively easy, and you simply save your output as an ASCII file and merge it with your Write document.

Swapping data between Superbase and VIP, although theoretically possible, is rather more tricky due to the specialised formats involved. Since spreadsheets are inherently number-based, and databases tend to be text based, there probably aren't too many occasions when you'd want to exchange data anyway.

Triple decker

As a freebie pack, the combination of Superbase, VIP and Write makes the 1040 superb value for money, and you'll get along very nicely. Superbase and VIP are excellent programs even if you shelled out hard-earned for them, but Write is a bit laboured as a serious WP.

Although the three aren't inherently number-based, and databases tend to be text based, there probably aren't too many occasions when you'd want to exchange data anyway. designed as an integrated package, overall the three packages work well together and for the average ST owner will prove more than adequate for any likely application. Good marketing by Atari/SDL.

Meanwhile you need to add a line at the start of the ex-Superbase data file saying what the names of the different fields are (eg. 'Name', 'Address1', 'Address2', 'AmtOwed' and so on). This tells Write what order to expect the data in. Now save the new address file was then saved out to disk in .DOC format and reload it ready to go.

Selecting Print Merge sets things moving, and letter number one should be printed out beautifully, unless you've got some field names wrong or other sillies like misplaced commas. Easy as pie!

HIDDEN FROM SIGHT

Word processors can be divided into two main categories – those which show the text as it will appear on paper (What You See Is What You Get) and those which don't.

Non-WYSIWYG systems – like Protext – generally hold formatting commands within the text as symbols which can ruin on-screen justification but don't slow the program down. When WYSIWYG is in operation the computer has to spend a good deal of time simply updating the screen when scrolling takes place and in extreme cases this can slow down program operation to a snail's pace.

For straightforward typing of bulky text a non WYSIWYG system is the best for speed and accuracy. Files prepared in this way can then be loaded into a WYSIWYG system – typically a desktop publishing program – for final polishing and page layout.

Microsoft Write offers both options. The simple system without GDOS and WYSIWYG facilities with GDOS installed.

CHARIOTS OF THE GDOS

GDOS is a program which is added to the GEM system to enable the ST to use graphics printing devices like plotters, and also to display custom fonts on screen. It is installed in memory before the main program is run, and like a desk accessory is transparent to the user.

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

WRITE

for

- **Variety of fonts available**
- **Choice of WYSIWYG & 'standard' display**
- **Mail merger included**

against

- **Very slow WYSIWYG mode**
- **Awkward editing system.**
- **No spelling checker or word counter**

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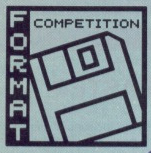


WIN A YEAR'S SOFTWARE!

It could be Christmas for you every single day of 1989. Two giants of the industry – Atari and Electronic Arts – have combined forces to offer ST Amiga Format readers the chance to win all their software releases in the next twelve months. And all you have to do is apply your grey matter.

So the ST and Amiga have got some incredible software, but let's be honest – it isn't all that cheap. How do you come by the top programs? Hard earned cash, presents, Christmas and Birthdays, general savings? Two lucky readers can forget all these techniques for the whole of 1989. The merry elves at Atari and Electronic arts have come up with a real cracker of a prize in our jolly festive competition. The first two correct entries pulled out of Santa's sack will receive EVERY PIECE OF SOFTWARE for the ST which Atari releases in the next year, or EVERY PACKAGE for the Amiga from Electronic Arts, the leading software house for the Amiga, plus loads of lavish runners-up prizes too.

Both companies are expecting a bumper year for new software. Atari are launching four new software labels (see this month's news pages for the full story) and releasing everything from a rework of its own classic *Star Raiders* arcade game, through wargames and puzzles to high-powered business software such as the continuing Hyper business series and *Calamus* Desktop Publisher from Germany.

Electronic Arts will be building on the strong position they have built for themselves with the superb *Deluxe* range of creative software, and top-selling games like *Interceptor*. They already have *Skate or Die* and *Chainsaw Warrior* lined up, plus a game from Bullfrog, authors of *Fusion*, and there are sure to be further developments in the Deluxe

THE QUESTIONS

1. Which of the following Amiga games was released by Electronic Arts in 1988?
- a. Virus
- b. Interceptor
- c. Starglider II
- d. Menace

2. Which of the following animals is distantly related to the elephant?
- c. The armadillo
- d. The capybara
- e. The hyrax
- f. The okapi

3. Which input/output port is found as standard on only one of our favourite two micros?
- q. SCSI
- r. DMA
- s. MIDI
- t. RS232

4. Which of the following is NOT a standard size of computer floppy disk?
- f. 3"
- g. 3.5"
- h. 5.25"
- i. 6.5"

5. Which of these Future Publishing magazines comes out most frequently?
- n. New Computer Express
- o. ACE
- p. 8000 Plus
- q. ST Amiga Format

6. Which city is the home of Electronic Arts in the USA?
- s. New York
- t. San Francisco
- u. New Orleans
- v. San Diego

7. Which TV show uses Amigas in its video wizardry?
- d. Top of the Pops
- e. The Chart Show
- f. Tomorrow's World
- g. Spitting Image

8. What is the name of Atari's UK MD?
- u. Steve Franklin
- v. Sam Tramiel
- w. Jack Tramiel
- x. Bob Gleadow

9. Who wrote the short story 'The Making of the Armadillo'
- h. Ted Hughes
- i. Rudyard Kipling
- j. Roald Dahl
- k. Fay Weldon

10. Why is the Atari ST 'Mega' range so called?
- r. Because they're really brill
- s. Because they're a lot bigger than other STs
- t. Because they all have at least 2 Mbyte of RAM
- u. Because they were designed by Meg A. Bettleheimer

THE METHOD

Study questions 1 to 10 and using your skill and judgement – or by taking wild uninformed guesses – decide on your answers. Any back copies of Format you have lying around may prove useful. Write down the letters corresponding to your answers, and you should have ten letters. These letters can be rearranged to make a phrase of two words, relevant to both ST and Amiga micros.

Write the phrase (*not* all the individual answers) on a postcard or the back of a sealed envelope, together with your full name and address. Don't forget to say whether you would like to win ST or Amiga software as your prize.

Send your entry to: *Festive Frolics, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.*

series.

One ST owner and one Amiga owner will win all these releases absolutely free, providing they can answer all the questions in our Christmas quiz and come up with the answer we're looking for. And there's a bevy of runners up prizes for the near-misses.

Try the quiz for fun or for gain – you'll need your wits about you, but then what are Christmas holidays for?

THE SMALL PRINT

1. All entries must be received by Thursday 26th January 1989. Winners will be announced in the March issue of ST Amiga Format.
2. The judges decision is final and no correspondence will be entered into.
3. Only one entry is allowed per person. Multiple entries will be ruthlessly weeded out and discarded, then there'll be a midnight knock on your door and you'll never be seen again.
4. The competition is not open to employees of Electronic Arts, Atari or Future Publishing, or five-banded armadillos.

THE PRIZES

On the ST:

■ First prize – One copy of every ST software package released by Atari UK in 1989. Although plans haven't been finalised, you're likely to get over £500-worth of top quality business and games programs from the boys who invented the ST. HyperDraw, HyperChart and Calamus DTP lead the way in business, plus some smashing games from Atari's arcade list.

■ Five runners up will each have the choice of a mystery prize courtesy of Atari UK. Hardware? Software? Only you can find out... send that postcard off today!

On the Amiga:

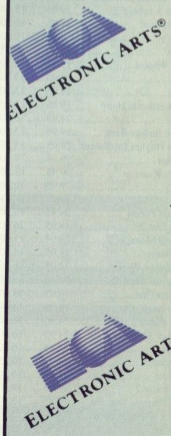
■ First prize – One copy of every Amiga software package released under the Electronic Arts label in the calendar year 1989. EA say there'll be around 12 titles, worth hundreds of pounds in shop prices. Cost to you: one postage stamp.

■ Second prize – Your choice of any four EA games from their existing Amiga range

■ Third prize – Your choice of any two current EA Amiga games.

And as if that wasn't enough, the first TWENTY entries will all receive a classy Electronic Arts sweatshirt – ideal for convincing all your friends that you're an incredibly highly paid programmer.

■ *Just some of the recent Amiga releases from EA – you could win the next year's batch.*



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Bubble Bobble	Firebird	19.99	13.50
Bubble Ghost	Ere Int.	19.99	13.50
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Carrier Command	Rainbird	24.99	16.50
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Empire Strikes Back	Domark	19.99	13.50
Enlightenment	Firebird	19.99	13.50
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Ferrari Formula One	Electronic Arts	24.95	17.50
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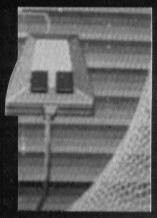
PROGRAMMING

LEARN BASIC

Wiping the tears from his eyes, RICHARD MONTEIRO concludes our instant programming course with a look at graphics and sound.



As promised last month, this final exciting installment of Learn BASIC will cover specific Amiga and ST functions: graphics, sound, GEM and Intuition. But first, a brief round up of what has gone before.

Part 1 (issue 2) – explained that Power BASIC and Amiga BASIC, both being based on Microsoft BASIC, have much in common. The PRINT command, which displays text and numbers on the screen, and INPUT, which handles keyboard entries while a program is running, were explained in detail. Variables were pigeon-holed.

Part 2 – loops and branches were the topic of the month. Forward and backward counting FOR NEXT loops, GOTOs, GOSUBs and CALLs were all there.

Part 3 – conditional loops and branches. IF THEN ELSE and WHILE WEND conditions were covered in depth. Relational operators, which are used to compare two values, were explained in full. So too were Logical operators (NOT, AND, OR, XOR and so on).

Part 4 – data structures and the different types of BASIC variable were detailed. DIMensioning arrays and READing values from them was also outlined, but Marginal Facts stole the show.

Part 5 – the joys of file handling. Sequential and random-access files. Which is best for you? Explanations of how to store, retrieve and append files. Generalised device I/O too.

Part 6 – continues...

Making music

The simplest sound that can be made is the error, or ASCII 7, beep. There are two ways of producing this noise: either by PRINTing character seven to the screen – PRINT CHR$(7) – or by using the command BEEP.

More complex noises are achieved using SOUND and WAVE. Unfortunately the parameters following the commands have different meanings on the Amiga and ST, which is hardly surprising as both micros have different sound chips. The Amiga's sound generator is a powerful 4-channel affair allowing amplitude and frequency modulation. While the ST's chip offers 3-channels (or voices) and square-wave envelopes.

Forget the technical waffle, here's how to make noises on your machine. ST first:

```
SOUND voice, volume
[,note][,octave][,duration]
```

Anything enclosed in square brackets is optional. The first parameter, voice, determines which sound channel should be used, and ranges from 1 to 3. Volume controls the output for the particular channel, and ranges from 0 (off) to 15 (very loud). Note and octave determine the pitch of the note. The octave ranges from 1 to 8 and the note from 1 to 12. Duration is simply the time the note plays before starting the next sound. It is measured in 50ths of a second.

Pressing a key will normally kill any sound being made due to the ST's keyboard click. The click can be killed by disabling it through the Control Panel or by an XBIOS call (more on these elsewhere).

Try this scintillating composition:

```
FOR t=1 TO 6
READ chan,vol,note,oct,dur
```

LISTINGS ON DISK

To load listings into AmigaBASIC, reset your Amiga and insert a Workbench disk. When the WIMP environment appears, replace the Workbench disk with your Extras disk. Double click on the AmigaBASIC icon after clicking on the Extras disk icon. AmigaBASIC will load. Go to the Project menu and select Open. Click on the drawer requester and enter LEARNBASIC. Click on the Filename requester, insert the Format cover disk containing the BASIC files, type in CHANGEFONT.BAS and press [Return]. The file will load. You may run it by clicking inside the BASIC window and typing RUN.

Loading listings into PowerBASIC (demo version supplied with Issue 2 only): reset your ST and place the Issue 2 disk in the drive. Double click on the CLICK_ME.PRG file icon when it appears. Choose Power BASIC (F1) from the menu. Power BASIC will load. The BASIC listings are loaded into Power BASIC by inserting the current cover disk and selecting Load from the File menu. Double click on SECED.BA when it appears in the selector box. The chosen file will load ready for running. Unencrypted versions of these programs, with .BAS extensions, are also on the disk. TIfese are for use with the full version of Power BASIC.

CUE FOR A NOTE

AmigaBASIC supports SOUND WAIT and SOUND RESUME statements. The SOUND WAIT statement causes all subsequent SOUND statements to be queued until a SOUND RESUME is issued. This can be used to synchronize the sounds coming from the four audio channels. If too many SOUND statements are queued without using a SOUND RESUME, AmigaBASIC generates an out-of-memory error.

GEM FROM POWER BASIC

The demonstration version of Power BASIC has been modified to prevent you from manipulating GEM *(why not buy the full version?, a snip at £39.95 from Format Special Offers – Ed).*

Power BASIC is supplied with several libraries (functions or callable subprograms). The file PBASIC.LIB, or HBASIC.LIB if you've got the the developers version, contains five additional libraries together with the corresponding run-time libraries:

BIOS	**Basic input and output**
XBIOS	**Extended I/O**
GEMDOS	**The operating system**
GEMVDI	**Virtual device interface**
GEMAES	**Application environment services**

If you want to use any particular library you have have to specify its name along with the LIBRARY statement. For instance,

```
LIBRARY "bios"
a=FNgetbpb%(0)
PRINT "BIOS parameter block:";a
PRINT
PRINT "Bytes per sector:";PEEK(a)
PRINT "Sectors per cluster:";PEEK(a+2)
PRINT "Bytes per cluster:";PEEK(a+4)
PRINT "Size of root directory in sectors:";PEEK(a+6)
PRINT "Size of FAT in sectors:";PEEK(a+8)
PRINT "First sector of second FAT:";PEEK(a+10)
PRINT "First sector of data:";PEEK(a+12)
PRINT "Number of data sectors on the disk:";PEEK(a+14)
PRINT "Various flags:";PEEK(a+16)
```

When using the supplied libraries you will often need to pass an address as a parameter. This can be done using VARPTR or SADD (for strings). Many functions and subroutines are straightforward, but others can cause complete havoc with the system if carelessly. The *Concise Atari 68000 Programmer's Reference* published by Glentop is a very useful reference if you're going to use libraries seriously.

```
SOUND chan,vol,note,oct,dur
NEXT t
DATA
1,15,10,3,20,1,15,12,3,20
DATA 1,15,8,3,20,1,15,8,2,24
DATA 1,15,3,3,40,1,0,0,0,0
```

The WAVE command is used to control the waveforms produced by SOUND. The syntax is `WAVE enable[,envelope[,shape-[,period[,delay]]]]`. The first parameter determines which voices are enabled and which channels emit white noise. Setting bits 0 to 2 enables voices 1 to 3, respectively. Resetting bits 3 to 5 places noise on voices 1 to 3. `Envelope` is the envelope generator register. Setting bits 0 to 2 enables the enlope for voices 1 to 3. Bits 0 to 3 of `Shape` refer to the length note is therefore roughly 4.25 seconds. `Volume` can range from 0 (lowest) to 255 (highest). `Voice` determines which of four Amiga audio channels the sound will come from. Specifying 0 or 3 selects the left audio channels while specifying 1 or 2 selects the right channels. Try SOUND 420,20,100,1.

To define the shape of a sound wave for a particular audio channel, use WAVE. Unusual sounds can be created by defining a number array to house the sound wave's shape. Each array element stores a wave-height number; when put together these elements define a curve (the wave's shape). The WAVE statement's syntax is `WAVE voice, wave-definition`.

The `voice` indicates which audio channel the sound will come from. The `wave-definition` can be SIN or the name of an array of integers with at least 256 elements. Each element must be in the range –128 to 127. For example:

```
DIM NOISE(255)
FOR T=255 TO 0 STEP -1
READ NOISE(T)
NEXT T
WAVE 0,SIN
WAVE 1,NOISE
```

Art studio

Graphics functions on the ST and Amiga are plentiful. As there are so many, and their operation so varied, there's a table with brief details of the more important instructions.

envelope's shape. Look at the diagram. The envelope period (duration of one cycle) is set by `Period`. `Delay` sets the time in 50ths of a second increments before BASIC resumes execution. For instance, `WAVE 1000,5,1000, 1000,10`.

Amiga noises

To produce a sound from the speaker use the command `SOUND frequency, duration [,[volume][,voice]]`.

The `frequency` simply determines the frequency of the note sent to the Amiga's sound chip. The minimum frequency is 20hz, and the maximum is 15kHz. A frequency of 523.25 gives middle C. The `duration` can be any numeric expression which gives a value from 0 to 77. It determines how long the sound will last. A one second sound has a duration value of 18.2. The maximum

AMIGA LIBRARIES FROM BASIC

Library routines are special files bound to Amiga BASIC dynamically at run-time. CALL is used to execute these routines. Parameters are passed using standard C conventions. Here's how to use library functions in your own programs.

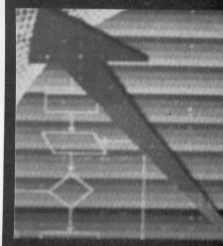
Several libraries exist for use with BASIC; each contains a varying number of routines. Associated with each routine is a file that describes the parameters and registers a particular routine uses. These special files have .fd extensions. Amiga BASIC uses the information they contain in a different format to assembler and C programs. Each .fd must be converted to a .bmap file before its associated routine can be accessed from BASIC. ConvertFD inside the BasicDemos drawer on the Extras disk does the job.

Before you can use a library, you must open it. This is done by using the LIBRARY statement. Five libraries can be opened at once. Once the library is open, its routines can be called in a manner similar to subprograms or your own machine language routines. If, however, your application expects a returned function value, you must inform BASIC of the value's type. Here's one way of doing it:

```
DEFINE FUNCTION OpenFont LIBRARY
LIBRARY "graphics.library"

DEFLNG a-Z
FontName$ = "topaz.font" + CHR$(0)
FontSize = 9

REM *** If current Point size is 9, change FontSize to 8
***

FontAttr(0) = SADD(FontName)
FontAttr(1) = FontSize * 65536&

FontPointer = OpenFont( VARPTR(FontAttr(0)) )
IF FontPointer = 0 THEN
    PRINT "Unable to Open Font"
    GOTO Abort:
END IF

CALL SetFont( WINDOW(8), FontPointer)
PRINT "Now in Topaz 9 font"

Abort:
LIBRARY CLOSE
```

The DECLARE FUNCTION statement alerts Amiga BASIC to expect integer values from the graphics.library functions AskSoftStyle& and OpenFont&. The LIBRARY statement opens graphics.library.

Library routines are described in full in the Amiga ROM Kernel Manual published by Addison Wesley. The best book we have encountered that deals with calling the ROM Kernel from BASIC is the Abacus book, *Amiga Tricks and Tips*.



SPEAKING AMIGA

Using SAY "string"[,mode-array] you can get the Amiga to speak the words held in quotes. The string must contain a list of phoneme codes (units of speech). The mode array, if present, is an integer array of at least nine elements which defines the characteristics of the voice. Pitch, inflection, rate, voice (male or female), tuning, and volume can all be altered. A demo file on the Extras disk in the BASICDEMO drawer called SPEECH.BAS shows just what's possible.

Command	Function	ST	Amiga
CIRCLE *	Draws a circle of co-ords x and Y with radius r.	Has parameters x,y,r [,a,b] a and b are start and end angles for arcs of circles.	Has parameters [STEP](x,y),r [,c[,a,b[p]]] where c is the colour and p is aspect ratio.
COLOR	Specifies colours to be used for text and graphics and style colours.	The parameters f[,f][,l][,i][,s] refer to text, fill, line, index	Foreground and background are specified by [f][,b]
GET/PUT	Stores and retrieves binary screen information.	Co-ords specify top left and bottom right of a square. Data is placed in an array.	
LINE	Draws a line from starting co-ordinates (x1,y1) to end co-ordinates (x2,y2).	LINEF x1,y1,x2,y2.	Parm syntax is [[STEP](x1,y1)] – [STEP] (x2,y2),[c][,b[f]]. c is colour, b is boxmode, f is fill.
PALETTE	Changes screen colours.	Parameters c,p determine the colour numb and phys colour.	Has parms colour number (0 to 31), red, blue, green.
POINT	Returns the colour of a pixel.	Legal co-ords return –1.	Illegal co-ords return –1.
SCREEN **	Changes the screen mode.	1 for medium res , 0 for low resolution.	Screen identifier, width, height, depth, mode.

* Power BASIC also has PCIRCLE which produces a filled circle.
** Amiga BASIC uses SCREEN CLOSE to close the screen.

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AMIGA ANIMATION

GRAPHICS

With its unrivalled range of quality animation packages, the Amiga is undoubtedly the choice for most Animators on a tight budget. JASON 'WALT DISNEY' HOLBORN tries out two of the latest low-cost offerings.

In the days of Donald Duck and Mickey Mouse, animation of even the simplest of images was a time consuming task. Each frame of animation had to painted by hand and then overlaid onto acrylic backdrops. Even just a few seconds of simple animation could take days to produce. Today's animators have at their disposal animation techniques that would have made old Walt green with envy.

FANTAVISION

£39 ■ All Amigas ■ Broderbund/Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3RN (031-557 4242)

Strictly speaking, *Fantavision* is not a new arrival on the animation scene. A few copies of the American NTSC version have been floating around the various software importers for a number of months now, but with the recent release of the new PAL version, European Amiga animators should find Fantavision of great interest.

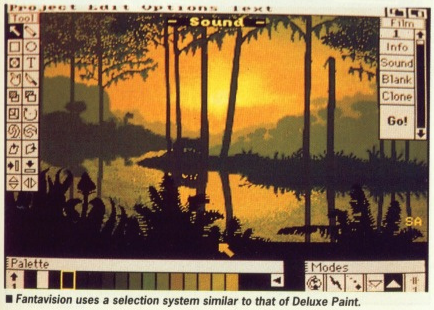
Fantavision has simple aims – to let you animate two-dimensional shapes on screen, with a background of any picture you've drawn in a paint package. It makes no pretensions to being a full 3D modelling package.

To create an animation is surprisingly simply. The first step in the production of any animation is to create an object to animate. The simplest item used by Fantavision is the polygon, which can be of any number points in any shape, from a 3-point triangle to a 100-point dinosaur shape.

The next step is to breathe life into your creation. You can manually drag points of a polygon around, or alternatively, Fantavision provides a well-stocked list of standard object manipulation tools. You could for example have your object flying about the screen while seeming to rotate in three dimensions and changing from a blob into a supersonic jet. Sounds adventurous, but you'll be surprised how quickly and easily this kind of animation can be achieved.

As well as polygons, Fantavision also allows you to use IFF brush files (small clips of a picture saved from a paint package) as animation objects. While using bitmap objects is nice – they contain a recognisable image rather than being a blank polygon – they also have their drawbacks. Many of the useful object manipulation tools like rotating things are restricted to working on polygons only. It *is* possible to animate bitmap objects, but this requires each frame to be drawn by hand in a paint package and then brought in independently, therefore loosing the advantages gained using tweening.

Fantavision can be used in all the Amiga's display modes, including 4096 colour 'Hold and Modify' mode. The only disadvantage of producing animation in HAM mode is that by the very nature of HAM, speed is sacrificed. And speaking of which, Fantavision's weakness is speed in



■ *Fantavision uses a selection system similar to that of Deluxe Paint.*

TWEENY BOPPERS

The workings of both Fantavision and Forms in Flight 2 are based firmly around the theory of image tweening. This is a technique whereby only the first and last frames of an animation need be drawn by the user; the computer is left to automatically calculate the frames in between, hence the name tweening. Using this system considerably speeds up the development of an animation sequence, when you consider there are usually half a dozen frames a second, because only the major frames are drawn.

Fantavision's tweening, surprisingly, is more sophisticated than Forms in Flight's. With F-in-F, all you can do is move and rotate a fixed shape around the screen, but with Fantavision you can transform one shape into another as you go. For instance, if you wanted Mickey Mouse to raise his arm you would just outline a Mickey with arm down and arm raised, and the program could do the rest. F-in-F could only move Mickey around the screen wholesale.

FANTAVISION

for

- Very easy to use
- Excellent Manual
- Works in all graphic modes
- Can import IFF sounds

against

- Slows down when using higher resolutions
- Doesn't cover true 3D animations

features
0 1 2 3 4 5

performance
0 1 2 3 4 5

ease of use
0 1 2 3 4 5

manuals
0 1 2 3 4 5

format value
0 1 2 3 4 5

■ *An object can easily be animated in Fantavision by moving particular points. Here, the dinosaur is first selected, then the points that make up its neck are moved to their new location. The dinosaur will lower its head smoothly.*

general. Particularly in the higher resolution modes, it does slow down considerably to the point where waiting for the program to catch up with you becomes annoying.

The manual is well written and includes numerous screen shots which helps considerably when first looking through the program. For first time animators, the manual includes a tutorial which guides you gently through the basics of the program.

So now for the six million dollar question: is the program actually any good? If you're a new arrival to the world of animation then there is no better introduction than Fantavision. The program is both easy to use and powerful and with a price tag of under £40 you've got a bargain.

FORMS IN FLIGHT 2

£79 ■ All Amigas, 1MB required ■ Micro Magic/Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, Scotland EH3 1RN (031-557 4242)

The next step for most animators used to the flat world of 2D is to move into a new dimension, that of 3D graphics. But the first thing that will dawn on you during the transition is that working in 3D is a completely different ball game.

Forms in Flight 2 is actually two programs rolled into one. The first module is a solid modelling program which is used to design your 3D

■ *The very impressive dinosaur demo that is included on the disk.*

objects and the second is used to actually animate what you produce in the first.

All objects within Forms in Flight are made up of two basic graphic primitives, the FSURF and the QSURF. Nothing to do with the Beach Boys though; an FSURF is a 2 dimensional flat surface which is used to construct a QSURF, 3 dimensional 'quad surface' which in simple terms is your 3D shape.

Any any time during editing, you can view your creation from any angle in either wire frame or as a solid object. One nice feature offered by Forms in Flight is the ability to map any IFF picture onto any surface. This could be useful as the texture of your object can be drawn in a program such as Deluxe Paint and then loaded in and mapped onto the object.

Once your object is complete, the next step is to animate it. This is achieved by defining a path of movement for the object. Forms in Flight then calculates each frame and then saves them to disk. Once the complete animation is formed, the resulting can only be displayed from a separate player program.

One sad omission is ray tracing – the ability to put a light source at some point around your object and make the surface appear to have shadows and reflections. Ray traced 3D objects look much more realistic, but the process is very complex. You'll have to move up-market to costlier animation packaged such as Sculpt 3D for that.

The manual is comprehensive but perhaps expects too much prior animation knowledge from the user. It includes several rather tacky diagrams but not a single screen shot appears.

If you make a mistake, the entire animation has to be re-rendered from scratch. Time is really the key with Forms in Flight; if you have plenty of it and are prepared to persevere, the resulting animations are superb, but don't expect instant results.

ADDING ATMOSPHERE

Unlike most other programs of this genre, Fantavision's trump card is undoubtedly its ability to import sound into any animation. Any sound sample in the 8SVX IFF format (eg. saved by ProSound on any sampler) can be used which can really make a substantial difference to the quality of any animation. Adding sound can turn a rather mediocre animation into a really impressive spectacle. For proof, try turning the volume down to zero when playing a game; the game becomes rather dull doesn't it!

HEAD TO HEAD

Strictly speaking, Forms in Flight 2 and Fantavision are too completely different types of program. Although both are categorised as animation packages, the systems used by each package are completely different. For the ambitious animator who is after true 3D animations, Forms in Flight 2 is good value, but if quick and simple conversions of your pictures drawn in DPaint are what you're after, then Fantavision is your best bet.

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

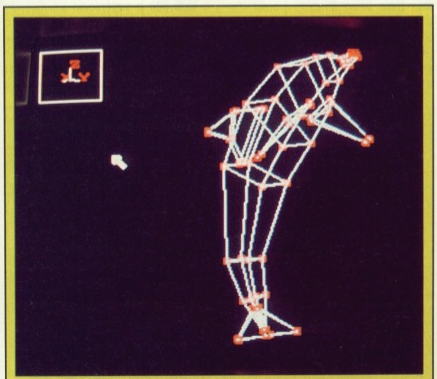
FORMS IN FLIGHT

for

- Powerful true 3D perspective modelling
- Can map several IFF images onto faces of the same object
- Shading functions smooth face edges out

against

- Comparatively complex to use
- Can't transform objects while tweening
- Lacks ray tracing & advanced 3D features



■ *Forms in Flight modelling a new look in dolphins.*

CODER'S COMFORT

REVIEW

If you enjoy getting your hands dirty, these are the pages for you. The Format boffins check out the latest in tools for techies.

Z80 X 68000 TRANSLATOR

£99.95 ■ ST version reviewed, all models; Amiga version available ■ CP Software, Stonefield, 198 The Hill, Burford, Oxfordshire, OX8 4HX (0993 823463)

Moving from the relative ease of 8-bit assembly programming to 16-bit assembly programming is daunting – no matter how competent you are at the former, retraining yourself to think in 16-bits takes time. Anything from a month to three months, which can be a very long time for a software house. Until recently there has been no easy solution. Now, though, CP Software (well known for their *3D Clock Chess* on various formats) have what could well be a life-saver for many: a Z80 source code to 68000 source code translator.

CP Software's program takes standard Z80 assembler source code (written in something like ZASM or Hisoft Devpac80) and converts it to HiSoft Devpac ST-compatible 68000 source. Translator is reasonably forgiving, but insists on having labels, opcodes, operands and comments separated by a tab.

Pushing it

You could write a game for the Spectrum, port the source across to an ST and run the Translator over the code. After running the translated code through an Assembler you would end up with the same game in ST-executable format. That's the theory. In practice things are a little trickier.

Naturally all system dependent routines will require modification – graphics, sound, system calls etc. There are some Z80 instructions that the Translator simply can't, or at least doesn't, translate: self-modifying code, stack pointer operations (excluding PUSH and POP, naturally), PO and PE conditionals, decimal functions (DAA, RLD, RRD) and system operations such as RST, EI, DI, IN, OUT and HALT which have no meaning in 68000.

In translation

All memory references need to be in the first 64K – this is hardly surprising as the Z80 can only address 64K of memory space. (Amstrad PCW owners might argue that their machines have 256K or even 512K. True, but only by clever machine-specific 'bank switching'.)

One nice feature of the translator is that the resulting 68000 source contains the original Z80 source. Not only is this useful to trainee 68000 programmers (who can quickly see what the Z80 code translates to), but also to the more experienced coder who might spot something that could benefit from optimisation.

In addition to standard Z80 pseudo opcodes (ORG, DEFB, DEFW, END etc), Translator will recognise EVEN (makes sure 68000 starts on a word boundary), M68K_ON and M68K_OFF. The M68K instructions let you mix standard 68000 assembler with Z80 – very handy for manipulating ST system calls and other machine-specific operations.

Translator works well and reasonably quickly. But translation becomes painfully slow when there is ambiguity over an instruction referring to data or a memory location – LD HL,23741, for instance – as you will be asked what you're trying to do. Generally, translated Z80 code will run faster on an ST than on the original machine, which isn't surprising as Z80 processors are clocked comparatively slowly. Translator is definitely a developer's tool. Who else can afford £99 for a utility?

Richard Monteiro

```
        ORG     100H
MAIN:   CALL    CLS
        CALL    PLINE
STRNG:  DEFM    'zyxwvutsrqponmlkjihgfedcba'
        DEFM    '0876543210'
        DEFM    'ZYXWVUTSRQPONMLKJIHGFEDCBA$'
        even
        CALL    CRLF
        CALL    SORT
        LD      HL,STRNG
        CALL    PSTR
        CALL    CRLF
        RET
```

■ *The source before (left) and after. After translation, the Z80 is enclosed in the equivalent of REM statements and the 68000 source appears directly underneath.*

```
*MAIN:  CALL    CLS
main    bsr     cls
*       CALL    PLINE
        bsr     pline
*STRNG: DEFM    'zyxwvutsrqponmlkjihgfedcba'
string  dc.b    'zyxwvutsrqponmlkjihgfedcba'
*       DEFM    '0876543210'
        dc.b    '0876543210'
*       DEFM    'ZYXWVUTSRQPONMLKJIHGFEDCBA$'
        dc.b    'ZYXWVUTSRQPONMLKJIHGFEDCBA$'
*       EVEN
***** Warning - direct translation
        even
*       CALL    CRLF
        bsr     crlf
*       CALL    SORT
        bsr     sort
*       LD      HL,STRNG
***** Query: STRNG - data or absolute address (D/A) ? A
        move.w  #strng-z80base,d0
*       move.l  d0,d7           ; PRINT THE SORTED STRING
*       CALL    PSTR
        bsr     pstr
*       CALL    CRLF
        bsr     crlf
*       RST
                                ; FINISHED
        rts
```

TWO DAY WONDER

When asked whether a version of the Z80 X 68000 package would be available for the Amiga, author Chris Whittington exclaimed: "An Amiga version! Would any Amiga owner want this facility?... Oh, all right we'll do an Amiga version. It'll be along in two days!" So by the time you read this it should be ready.

CROSS ASSEMBLING

CP Software's translator is one solution to the developer's problems. A more common one is 'Cross Assembling'. Most program development work for 8-bit micros takes place on a more powerful machine like a PC, ST or Amiga. The same is true, although to a lesser extent, with the ST and Amiga; a more powerful machine being used to create the applications that run on those machines. Peygnosis, for instance, program their games on a Sun workstation and squirt the final code into an ST or Amiga.

This practice – called cross assembling – is usually performed because the target machine hasn't the proper programming tools or power to compile reams of code in seconds. Have you ever tried writing more than 2K of assembler using a rubber Spectrum keyboard?

for

- **Works quickly and efficiently**
- **Z80 source tagged to 68000 source for easy comparison**
- **Extremely easy to use**
- **68000 source can be mixed with Z80 source**

against

- **Limited audience**
- **Doesn't bypass Z80's 64K address limit**

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

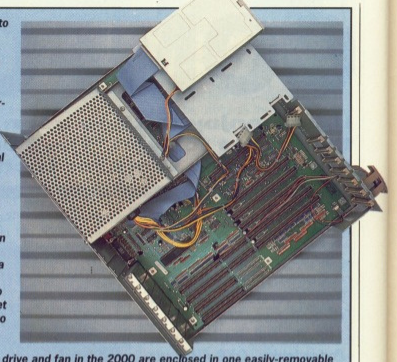
format value 0 1 2 3 4 5

CMI AMIGA ACCELERATOR

From £179 (optional 68881 from £109.25 extra) ■ All Amigas ■ Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, EH1 3RN (031-557 4242)

You pay for performance. £4000 for a Reliant Robin, £100,000 for a Porsche 959. £400 to £1200 for a standard Amiga, and £3000-plus for a 80386 superfast PC. If you're into power computing and need loads of processing power, then short of paying £1000 for a 68020 upgrade board, the very-reasonable CMI Processor Accelerator might tickle your fancy.

Your Amiga comes equipped with Motorola's 68000 microprocessor operating at a clock frequency of 7.16 Mhz. The CMI board is built around a faster version of the 68000. During operation the chip runs at exactly twice the standard clock frequency, or 14.32MHz, consequently making your Amiga run faster. The board also provides the necessary hardware to support a 68881 maths co-processor chip. This device, if plugged in, can speed floating point maths functions by an incredible 10 times.



▲ *First step to fitting the board in a 2000, shown here, is to remove the screws securing the top cover. 500s and 1000s have an awful metal shielding that also needs to be ripped out. Fitting the accelerator in the smaller machines is a real headache, so it's best to get your dealer to install the board.*

Both the drive and fan in the 2000 are enclosed in one easily-removable metal casing. Underneath this you'll find the long, thin 68000 processor.

MORE ON MATHS

The optional 68881 maths co-processor that can be fitted to the accelerator board can be be rated at either 12.5MHz or 16.67MHz. In addition to the chip you'll need a crystal oscillator. The crystal speed must match the chip speed. Co-processors aren't cheap: £109.25 for a 12.5MHz version and £143.75 for a 16.67MHz version. The Amiga Centre Scotland will be able to help you choose the correct bits and pieces.

ACCELERATED FACTS

	CALCULATING PI [1]	FLOATING POINT [2]	SAVAGE [3]	WHETSTONE [4]
Standard Amiga running at 7.16MHz	4.91Kflops/sec	10,000/45.44s	473.42s	24KWhets/s
CMI-enhanced Amiga running at 14.32MHz	5.83Kflops/sec	10,000/35.86s	403.60s	28KWhets/s
68881-boosted Amiga running at 7.16MHz	8.31Kflops/sec	10,000/18.32s	18.76s	85KWhets/s
68881-boosted Amiga running at 14.32MHz	8.75Kflops/sec	10,000/17.52s	17.98s	89KWhets/s

[1] Calculates Pi using floating point add, subtract, multiply and divide instructions. The results are in flops/s (floating point operations per second).
[2] Measures the time taken to perform 10,000 floating point calculations.
[3] A benchmark testing both speed and accuracy. Listing values to 16 decimal places is space consuming so we have stuck to the speed side of things.
[4] The Whetstone test includes integer arithmetic, array indexing, procedure calls, conditional jumps and elementary function evaluations.

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

for

- Very compatible with standard software
- Maths co-processor speeds up f.p. operations dramatically
- Leaves expansion sockets free

against

- Fitting the board is tricky
- Speed increase not stunning with double-speed CPU alone
- 68881 only works with V1.3 IEEE maths libraries.

In operation

On initial power-up, or after a soft reset, the Processor Accelerator always resets to the standard 7.16MHz clock speed. This means auto-booting software like games will always run at the normal speed.

To enable double-speed operation you have to run a short routine. This simply toggles between 7.16MHz and 14.32MHz – you could incorporate this in your startup-sequence quite easily to make your default the faster speed.

With the processor speed clocked at 14.32MHz, you'll spot subtle improvements in the speed of Workbench operations. Software speed isn't doubled because all the other custom chips in the Amiga – like the blitter – still work at their usual rate. Depending on the application, you can expect to get anything from a 5% to 40% improvement.

Floating-point maths routines will be significantly improved with the 68881 chip installed. However, only software using the Workbench 1.3 IEEE maths libraries can access it. At present very few commercial products (only Sculpt 3D that we know of) link to IEEE libraries, because in general they are much slower (although a lot more accurate) than the FFP fast floating point libraries. At present, the 68881 is only really of use if you are write your own programs to use it.

Overall, it's a remarkable board for the price: compatible with everything we tested, very simple to use and tucked out of the way leaving expansion slots free.

Richard Monteiro

▲ *The last stage is simply inserting the CMI board into the processor socket. The system has to be informed of the go-faster board by means of a software patch. If you don't tell your Amiga that the faster processor is plugged in, it will run at normal speed.*

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STOP PRESS!! What does the customer say: "I was very impressed with the general standard of the progams & their ease of use. I had a look around the program & worked out how to input the data without the use of the manual which shows just how good the program structure is set out. To get to the point, the very first entry I did came up trumps with 2 lines of 21 ½ points. It brought me a win of £11,88. Not bad for a first attempt. Thanks for an amazing program. Regards P.J.L.Solihull. (Name & Address with held for obvious reasons.)

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DESKTOP

Wander down to the ol' Format coral for all the very latest tricks, tips and naughty-bits that nobody wanted you to know. This month's winner is Adam Hill from Birmingham for his stereo ST tip. Now you can have sound in both ears. You too could win loadsamoney by sending in your hints.

DEGAS Dodges

If you want to avoid all the hassle of spending hours poring over the Degas colour palette trying to create all the different shades between two colours, then this one's for you. First of all, select COLORS from the SET menu and then position the white tick on the first colour and move the mouse over the second colour where these two colours represent the shades which you wish to create. Then by clicking on the right mouse button whilst holding down the [Alternate] key all the colors between these two points will fill with the different shades.

R. Barnes
Clacton-On-Sea, Essex.

Jack-knifing NEOCHROME

Did you know that the Jack-knife icon in Neochrome can be used for more than just cutting and pasting sections of irregular pics? By choosing the Jack-knife icon from the menu and selecting a section of the screen you can create your own brush in any size and shape. Move it around by holding down on the left mouse button and draw by holding down the right mouse button and dragging your brush around the screen. Different speeds and patterns create all kinds of different effects.

D. Arrowsmith
Leamington Spa, Warwickhire.

Programming Accessories

In the last few issues of your magazine I've noticed that there seems to be some problem creating desktop accessories. I have enclosed a few pointers which might be of help in creating accessories.

1) Call `appl_init`, which is a standard AES call.

2) Get the 'application ID' from the INTOUT(0) array. This value is one word (.w) long.

3) Put the 'application ID' into the INTIN(0) array.

4) Put the address of a string which you wish to appear under the Desk menu into the ADDRIN(0) array. The string should end with a zero byte.

5) Call `menu_register`, an AES call – this actually puts the name in the desk menu.

6) Get the menu ID from the INTOUT(0) array and save it for later use.

7) Put 16 (decimal) in the

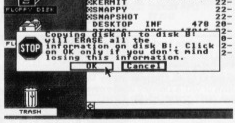
BEGINNER'S CORNER

Copying files on the ST is one of those operations which is about as easy to understand as setting the timer on your video recorder to catch an episode of *Neighbours* – there's always something that can go wrong. This month we look at the various solutions.

DISK TO DISK COPYING

This is by far the simplest method of copying your data. By pointing the mouse over the FLOPPY DISK A icon and clicking on the left mouse button, the icon will become highlighted. Holding the button down and moving the mouse lets you drag the icon around the screen.

If you move it over the top of the FLOPPY DISK B icon so that both of them become highlighted, you will be able to copy all the files on drive A to those on drive B, even if you haven't got a second drive connected. This dialog box will appear:

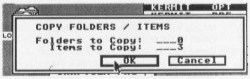


The desktop will ask you to insert your 'source disk' – the disk everything is copied from. Insert the disk with the programs you wish to copy into the drive and click on OK. Your ST will then load in all data on this disk. When the process is completed you will be asked to insert disk B (If you have a second drive connected then everything on the disk in drive A will be copied automatically to the disk in B). Only place an empty disk into the drive because the disk will be cleared and filled up with the exact contents of the Source disk.

USING THE FILE COPIER

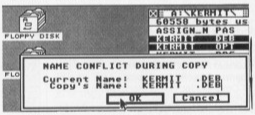
By double clicking on the FLOPPY DISK A icon you can bring up a window showing all the programs on your disk. You can select the programs that you wish to copy by clicking on them (hold down shift and click with the left mouse button on other programs in the same window if you wish to copy more than one file) then, holding down on the left mouse button, drag the files to the FLOPPY DISK B icon and release the button.

The following Dialog box will appear:



Disk A, the Source disk, is the one which holds your files and disk B, the Destination disk, is the one onto which you'll copy everything that you've selected. If you have two drives then this process will take place automatically but otherwise you'll need to keep swapping between the two disks.

Using this method of copying extends the list of programs on a disk so if you run out of room then an error message will appear. If you try to copy one file onto a disk which holds another file of the same name then you'll get this error message:



Clicking on CANCEL will abort the copying. Alternatively, you can change the name of the file and then click on OK. If you just click on OK without changing the name then the original file on disk B will be erased and the new file will be saved.

OTHER WAYS OF COPYING FILES

There may be times when you'll want to copy something into a folder on the same disk. You can do this very simply by selecting the required programs (as outlined above) and dragging them over to a folder icon. You'll know when to release the mouse button because the folder name will become highlighted. The copying then starts.

If you wish to copy a file out of one folder and into another then you'll need to have several windows up on screen. This can be done by double-clicking on the FLOPPY DISK A icon to bring up the windows and then opening the required folders. Select your file(s) in one window and then drag them into another to your copy your data.

There is no quick way to move files, as opposed to copying them. First you need to copy them, as described, then drag the originals to the Trash Can to delete them.

INTIN(0) array. Put the address of a buffer 16 bytes long into the ADDRIN(0) array.

8) Call `event_multi`, an AES call. ie. `event_multi(16,0,0,0,0,0,0,0,0,0,0,0,0,0,0,&buff,0,0,0,0,0,0,0,0);`.

9) Test the first word (.w) of the buffer (&buff) for 40 (decimal), AC_OPEN, if it is not equal to 40 then go back to step 7.

10) Test the word at buffer+8 (&buff+8) to see if it is the same as the 'menu ID' which you saved earlier. If it isn't the same then go back to step 7.

11) Perform the remainder of the program and then return to step 7.

Do not try to return memory to GEM by calling the Gemdos `m-shrink` call as you would do at the beginning of a normal GEM program. Do not try to terminate the accessory with `Pterm`, `Pterm()` or `Pterm_res` either. Many return memory and terminate which is the reason why creating accessories in high level languages is difficult. At the start of a desk accessory all registers, including A7, contain 0 except A0 which points to the accessory's Basepage. Accessories must be designed so that they contain all the memory which they require within themselves.

MONEY FOR NOTHING!

Yes, you have the chance of getting your mitts on loadsaloot! And at what cost to you? A few lousy lines of hints on getting the best out of a software package, or a hardware modification, or how to use the Desktop more efficiently or anything you feel will interest other avid ST users.

The star tipster each month will gain instant fame and great wealth (well £30 actually). So come on, share your secrets with 40,000 other readers. And perhaps it'll be your lucky day. Rush your GEMs to Desktop, ST/Amiga Format, 4 Queen Street, Bath, BA1 1EJ.

Paul Grayson
Brinkley, Cambs.

MAKING THE MOST OF STEREO SOUND

This project will give your ST true stereo sound when connected to a stereo amplifier. This works on all versions of the ST and programs which produce normal sound will now also produce sound in stereo. Since sampled sounds rely on the fact that all three channels produce an identical level of sound then samples will appear distorted in stereo, although they'll still be okay when heard through your TV or monitor.

The ST contains chips which may be damaged by static electricity found on your body. For this reason you're advised to work on an anti-static surface or alternatively a sheet of aluminium foil taken to an earth point. It is a good idea to keep in contact with the earth point yourself to make sure that static is not allowed to build up. Only handle the ST's PCB by its edges to avoid risk of damage.

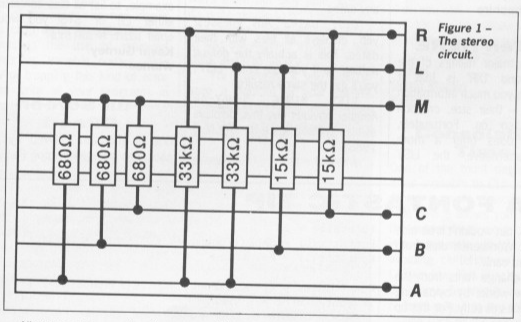


Figure 1 – The stereo circuit.

All you need to create stereo sound is a 25 way plug (printer cable) and two phono-type plugs, a small piece of veroboard, 3 x 680Ω resistors, 2 x 15kΩ resistors and 2 x 33Ω resistors and some wire.

Format warning: this tip involves a permanent modification to your ST and should only be done if you are absolutely confident that you understand what you are doing. We take no responsibility for your mistakes!

Before you open your ST, make up the circuit board shown in fig. 1 leaving long wires which may be connected to the ST's circuit board later. Remove the cover of your ST and take out the keyboard. If you own an STFM then remove the disk drive and power supply unit.

Next, with a pair of pliers straighten out the tabs securing the shielding, remove the three screws at the front of this and lift it away. Now undo the screws holding the circuit board in position and lift it away from its lower shield.

Locate the sound chip which will be towards the rear left of the board and has the code YM-2149 inscribed on it. With a small pair of cutters snip the legs labelled A,B and C in figure 2 making certain that there is enough of the pin still attached to the chip to solder a wire to it.

Solder the wires marked A, B and C in fig.1 to their respective pins on the sound chip. *Only allow the soldering iron to touch the chip for the briefest of moments, as excess heat will destroy the chip.* The wire marked M should be connected to any one of the positions to which the cut pins were connected. This is best achieved by soldering to the underside of the main board, remembering to feed wire M through a convenient hole in the PCB.

The wires marked L and R are the left and right stereo outputs and must be taken outside the computer so that they can be plugged together with a Gnd connection and taken to your amplifier. The best way of doing this is to connect them to the unused pins of the printer port (see fig. 3). A lead will then be required to connect the amplifier to the computer (fig. 4)

Wrap the veroboard in insulation tape just to make sure everything is safe and then reassemble your computer. If your ST fails to work properly when you switch on then switch off immediately and check all your work. If everything has gone okay then normal sound can be heard through your amplifier and amazing stereo sound will come through the amplifier – eat your heart out Amiga!

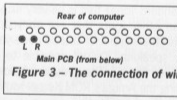
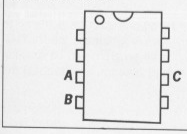


Figure 3 – The connection of wires L & R.

Figure 2 – The sound chip (viewed from above)



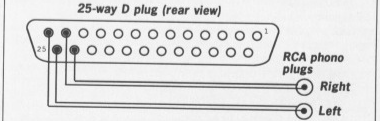


Figure 4 – the lead for connecting to an amplifier

WORKBENCH

Enter Amiga owner and discover within the next two pages a treasure trove of handy tips just for you and your Amiga. Every month you could win £30 for your genius! This month's winner is Darren Griffiths for his amazing AmigaBASIC program.

Protect and Survive

Have you ever accidentally erased an important file? To avoid such a disaster, AmigaDOS offers a powerful facility that allows you to protect any file from a whole host of various mishaps that can befall any unsuspecting file. Hidden with the 'C' directory of your Workbench disk is a mysterious little CLI command called appropriately, *PROTECT*.

Each file on an Amiga disk has four flags that determine whether the file can be read, written to, executed or deleted. By changing the setting of these flags it is possible to stop any file from being accidentally deleted. The options for the command are:

R	–	*Read*
W	–	*Write*
E	–	*Execute*
D	–	*Delete*

To protect a particular file, you enter the filename of the file to be protected followed by any combination of these codes. For example, if you had a text file called LETTER.DOC that you wished to protect against accidental erasure, you would enter:

```
PROTECT LETTER.DOC RWE
```

Because the D code is missing from the RWE tag, the file, LETTER.DOC, will now be set so that it can't be deleted. The other three flags, RWE, are currently not implemented under the current release of KickStart and are therefore ignored by the Amiga. This means you can't read-protect your files yet.

Kevin Gurney
Widnes, Cheshire

LISTen HERE

One of the major failings of the CLI command 'DIR' is that it doesn't give you much information about files – their size, creation date and so on. Fortunately, AmigaDOS does offer a more powerful alternative, the LIST command.

LIST is used to display all sorts of useful information about files such as creation date and file protection. The useful thing about LIST is that it also includes extensive wildcard support. The options offered by LIST are: UPTO, SINCE, S, P, NODATES and QUICK. Here's a few examples to show you the general gist of using LIST.

`LIST TO PRT:` Sends what would normally be displayed on screen to your printer.

`LIST NODATES` Displays a listing of all files without showing any dates.

`LIST DATES` Any guesses? yep, displays all files with their dates. This is actually the default setting so if you just enter 'LIST', you'll get the same results.

`LIST SINCE 5-MAY-88` Another obvious one this, displays all files created since the 5th May 1988.

`LIST UPTO 5-MAY-88` Complicated stuff this! I'm sure I don't really need to tell you that all files created before the 5th May 1988 are displayed.

`LIST QUICK` Lists all files without displaying any file information. The output is rather reminiscent of the DIR command.

`LIST S DOC` Displays all files whose filenames contain the string 'DOC'. This is perhaps the most useful option offered by LIST. Multiple strings can also be searched for by separating each string with a vertical bar. For example, to list all files containing either 'ER' or 'SYS' you would enter `LIST S ER|SYS`.

Kevin Gurney
Widnes

Full Screen DPaint

One nice feature offered by art packages such as Photon Paint is

A FONTASTIC TIP

The Amiga's standard Topaz font is all very nice, but wouldn't it be nice to use all those other fonts that are on your Workbench disk from BASIC? With this little snippet of source code you can!

Technically speaking, it's not possible to change fonts from the current release of BASIC. The program below works by by-passing BASIC and calling the Amiga's ROM Kernel routines directly. For this tip to work, the two libraries files, `diskfont.bmap` and `graphics.bmap` must be present in the same directory as the program itself.

You'll find `graphics.bmap` on your Extras disk hidden somewhere in the BasicDemos drawer. However, the library `diskfont.bmap` has to be constructed using the program `ConvertFD` in the BasicDemos drawer. The actual library in its unconverted form is in the drawer 'FD1.2' on your extras disk under the filename of `diskfont_lib.fd`.

To convert the library, firstly load the program CONVERTFD by clicking on its icon. Once loaded, it will ask for an input filename, enter `Extras:FD1.2/diskfont_lib.fd` and press RETURN. When prompted for the output filename, enter `Extras:BasicDemos/diskfont.bmap` and that's it.

```
DEFLNG a-Z
CHDIR "Extras:BasicDemos/"

DECLARE FUNCTION OpenDiskFont LIBRARY
DECLARE FUNCTION OpenFont LIBRARY
LIBRARY "graphics.library"
LIBRARY "diskfont.library"

Fontname$ = "diamond"
PointSize = 20
FontAttr(0) = SADD((Fontname$ + ".font" + CHR$(0)))
FontAttr(1) = PointSize * 65536&

FontPointer = OpenDiskFont( VARPTR(FontAttr(0)) )
IF FontPointer = 0 THEN
  PRINT "Unable to Open Font."
  GOTO Abort
END IF

CALL SetFont( WINDOW(8), FontPointer)
PRINT "Hello There Matey! Now in Diamond Font"
CloseFont( FontPointer )

FontAttr(0) = SADD(("topaz.font"+CHR$(0)))
FontAttr(1) = 8 * 65536&
FontPointer = OpenFont( VARPTR(FontAttr(0)) )
CALL SetFont( WINDOW(8), FontPointer)
PRINT "Back to Topaz 8 Matey!"

Abort:
LIBRARY CLOSE
```

If you're feeling in a lazy kind of mood and can't be bothered to type the listing in, we've included the above program and the file 'diskfont.bmap' on this month's cover disk. The program can be found in the LearnBASIC drawer along with a short note on how to install the files and run the program.

Darren Griffiths
Trowbridge, Wilts

the ability to work in overscan mode. Under normal circumstances, the Amiga display is restricted to a rectangle in the centre of the screen but with overscan enabled, the entire screen can be used.

The first thing you must do to access overscan is to increase your working page size. This is achieved by selecting the PAGE SIZE option from the Project menu and a requester will pop up. Next select 'FULL VIDEO' and click on 'OK'. Not a great deal has happened has it?

What you have now done is to increase the page to overscan size. Unfortunately, DPaint does not allow you to actually work in overscan mode; you can only display what you have produced.

To display your work of art in overscan, select 'SHOW PAGE' from the project or press <SHIFT><S>. To revert to the normal mode, just click the left mouse button.

A Bug-Busting Tip

One of the most common errors that crop up in AmigaBASIC programs is the use of reserved words as variable names. One way of trapping this kind of error is to write all your programs in lower case. When you get to the end of a line and press return, AmigaBASIC automatically converts all reserved words to capitals. If any of your variables change to upper case then you know that you have used a reserved word.

This is also handy for trapping typing errors. If the command you enter doesn't get converted to upper case then you know that it either isn't an AmigaBASIC command or you have made a typing error. Simple but useful eh!

Patrick Saunders
Coventry

Printed results

If you get very frustrated trying to use the CLI to examine the contents of your disks on screen either because the whole list won't fit on the screen or you just want a quick look at a list you had on screen two minutes ago, then the obvious answer is to get a hard copy of the lists you want. But, sadly the Commodore manuals aren't very helpful – the information's there but only just!. In fact it's quite simple to print the results of a DIR command, you only need to add the redirect symbol > and state which to send it to.

For example, if you wish to have a printout of your current directory simply enter the following from the CLI:

```
DIR > PRT:
```

You don't have to send the results to your printer right away. Sometimes it's useful to have a copy on disk. To store a disk's directory in a file called DIRECTORY, use

```
DIR > DIRECTORY
```

This opens (or overwrites if it already exists) a file called DIRECTORY which contains the results of the DIR command. At a later date you can

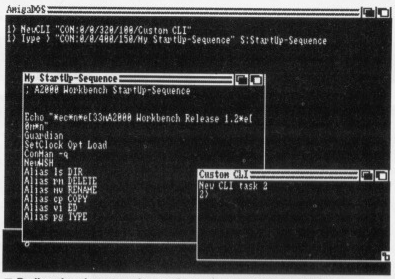
```
TYPE DIRECTORY
```

(to display it on screen) or

```
COPY DIRECTORY TO PRT:
```

to print it.

David Martin
Exeter



■ *Redirecting the output from a CLI command to its own independent window. Pressing the SPACE bar will halt the output while the BACKSPACE key will continue it.*

Consolation Time

One of the most neglected features available to CLI users is the Amiga console device. The console device allows you to redirect the output from most commands into a separate window, therefore avoiding cluttering up your main CLI window. This is achieved using the same technique as used to redirect output to any other Amiga device such as the printer.

For example, what would you do if you wanted a directory listing of a disk that was chock-a-block with files without removing what is already on the screen? Simple, you use the console device.

```
DIR > "CON:0/0/640/250/
Disk Directory" DF0:
```

The above command will redirect the output from the DIR command to a window of dimensions 640 by 200 pixels. The text string is the window title.

Once the command has finished, the console window will be automatically closed and control returned to your main CLI window. To halt the display of text in a console window, just press the space bar and to continue, the back space key.

One thing to note about using redirection under AmigaDOS is that the actual redirection has to be at the start of all parameters for a command. Entering `DIR DF0: > PRT:` will not work. It should in fact be `DIR > PRT: DF0:`.

More Shortcuts

Have you ever been busy typing away within your Word Processor when all of a sudden a requester pops up asking you to 'Insert Volume ...'? Having to dig deep under the masses of printer paper to locate your mouse can be annoying to say the least.

Luckily, Workbench features a keyboard shortcut which allows you to 'click' on either RETRY or CANCEL without ever having to disturb your mouse.

When a Requester pops up, while pressing the left Amiga key, press V for RETRY or B for CANCEL.

BEATING THE GURU

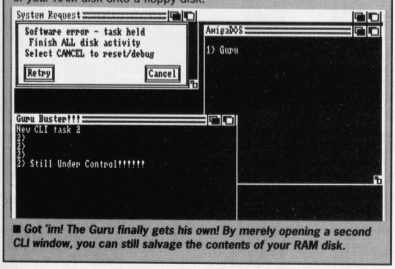
Here's a handy little tip for those of you who program the Amiga in languages such as C and assembler.

Picture the scene, there you are writing a program to access the ROM Kernel. You compile it, everything seems ok. Then you run it and before you very eyes your Amiga gets an attack of the Gurus. You can say goodbye to the contents of your RAM disk!

One of the most common causes of a crash is a stray pointer. It is all too easy to forget to initialise identifiers and pointers but the results can be disastrous.

However there is a way of maintaining control of your Amiga even after the dreaded 'SOFTWARE ERROR' requester pops up. Contrary to what most non-Amiga owners would have you believe, the Amiga does manage to keep most crashed tasks under control long enough for you to save everything off to disk.

The solution is to keep at least *two* CLI windows open. When the Guru rears his ugly head, he only has possession of the CLI window that launched the program that awakened him. All you now have to do is to select the CLI window that is still alive and save the contents of your RAM disk onto a floppy disk.



■ *Got 'im! The Guru finally gets his own! By merely opening a second CLI window, you can still salvage the contents of your RAM disk.*

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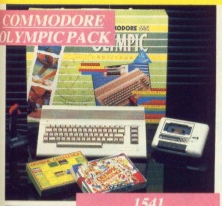

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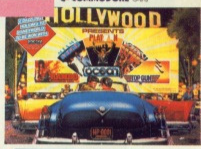

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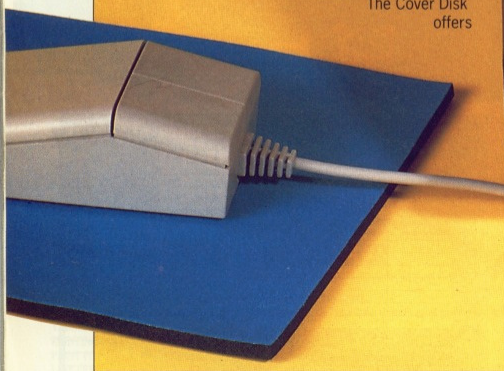

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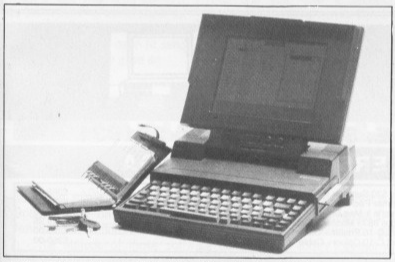
GOLD DUST

After the ST laptop, another ST laptop! Industry-watcher Steve Gold looks at Stacy-2 and Comdex's repercussions on the rest of the U.S. scene.

Well, I got it wrong. Atari didn't show the 68030-based ST as I anticipated last month. Instead, they didn't exhibit at Comdex proper, but rented out a few rooms in a nearby hotel. Most of the computer weeklies have already reported on the prototype ST laptop – code-named Stacy by Atari – but I can exclusively reveal that *two* laptops are in the pipeline.

To prevent confusion, I've code-named them Stacy 1 and 2. (*That's a bit confusing, isn't it? – Ed*). Stacy 1 is the laptop that most other publications have reported on. Stacy 2 is an as-yet unreported true laptop, plans for which were sneak-previewed to a very few Comdex attendees.



■ *A laptop PC – Stacy-1 will look like this.,with a trackball too.*

Stacy 1 is the bulky laptop which almost all the Comdex Las Vegas journalists reported on as looking similar to the Toshiba T3100. Europe will get its first peek at Stacy 1 next March, at the Hanover CeBit Fair in West Germany. By then, plans should have crystallised on Stacy 2, the second-generation ST laptop from Atari.

Son of Stacy

Stacy 2 has a blue back-lit LCD screen but, unlike the bulkier Stacy 1, will have no hard disk. The machine should be close in size to the tiny Toshiba T1000.

Pricing? That's anyone's guess, assuming the machine even makes it to market. What is becoming clear is that Atari was flying a few kites by previewing a mock-up and some hand-built alpha-test laptop prototypes at Comdex.

Which brings us on to the 68030-based ST. Jack Tramiel announced at a developers conference, held at Comdex, that the Unix box will ship some time during the second quarter of 1989. The machine will not, however, be TOS-compatible – ie it *won't* run ST software – and is pitched firmly at the Unix workstation market.

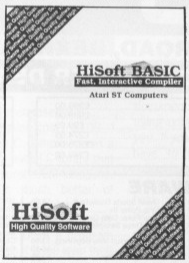
However, Tramiel and others also revealed the existence of a 68020-based ST Plus, a machine which many ST lovers expect will at last equal the performance of the Amiga in terms of graphics and sound. The machine is expected to be downwards 68000-based ST compatible, but the question is – are we witnessing a repeat of the Sinclair Spectrum 128K machine? Bolting go-faster stripes onto old products rarely works.

HiSoft deal

On the software scene, Michtron took the unusual step of announcing it is dropping GFA products from its catalogues in the US. In place of GFA Basic for the ST, the company has signed a major deal with HiSoft of Bedfordshire here in the UK. The first result of the new deal is that Michtron are now distributing HiSoft's Basic for the ST in the US.

The deal is good news for HiSoft ST Basic fans in the UK, since it assures the company of a massive market for its products in the US.

Supra Corporation is reported to be cheesed off with the lack of support that Atari is giving developers. As a result, the company announced at Comdex that it is now concentrating new product development on the Amiga, leaving the ST to receive modified versions of products designed for other machines.



The good news is that the company is developing an internal 2400 baud modem for the ST, based upon the design of the IBM unit the company unveiled at Comdex. At $149.95 for the IBM version, the modem sounds like it will be a good buy for ST users.

Finally, just room to repeat the comment that Sam Tramiel made to Dave Small's wife, Sandy, at Comdex. "It looks we'll be bringing a Mac laptop out before Apple does," he said, looking at the Smalls' *Spectre 128* plug-in Mac emulator for the ST.

Commodore-dex

Commodore had a fine time of it at Comdex as well. The company wheeled out two new Amiga's: the A2000HD and the A2500. The A2000HD is really an uprated version of the existing A2000 machine, with a 40Mb hard disk filled with ready-to-roll business software. The A2500, meanwhile, is a totally new machine aimed at the Unix and graphics workstation market – see the news pages for full details.

There was still no sign of the 1Mb-equipped A500 at Comdex. Sources close to Commodore suggest that plans for an expanded RAM A500 have now been shelved, owing to the cost of the DRAM chips. Commodore's lack of enthusiasm for an increased memory A500 could have something to do with maintaining the differentials between the baby Amiga and the A2000 – or am I just being cynical?

■ Gold Dust *is compiled from the US online services by Steve Gold, a freelance journalist specialising in computer communications. Email, industry tips and comments are welcomed on Telecom Gold 72:MAG066 or via the US E-mail networks: Compuserve 76011,1155, SGOLD (BIX & CIX), and The Source on IP2009.*

GO FLY A KITE

A word in reply to the few readers of ST Amiga Format magazine who have gleefully Emailed me to tell me that I've been wrong with my reports of forthcoming new hardware from Atari.

The reason for this is quite simple. Atari seems to be showing products to the press and industry gurus, clearly aware that its products will be heavily reported, and can gauge reaction to a new 'product' before it actually starts production.

This attitude contrasts sharply with Commodore, whose new products are carefully alpha- and beta-tested, before being unleashed on the public. Despite the fact that the Atari ST outsells the Amiga in the UK, this vapourware attitude towards new products at Atari can only cause trouble.

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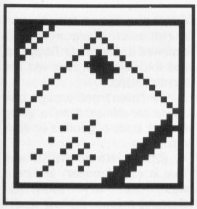


FORMAT LETTERS

The heady whiff of material reward has certainly boosted the mailbag this month – stake your claim to a luxurious ST Amiga Format Organiser prize by sending us your opinions on life, the universe and everything. Write to *Format Letters, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.*

ST to Amiga

I wonder if you could help me on a couple of problems I have.

1. Do you know of any commercial or public domain COBOL or similar programs available for the ST or Amiga.

2. Is it possible to port software over from an ST to an Amiga? And if so, how?

Frank Fabri
Erith, Kent

■ *Nevada COBOL for the ST is available from HiSoft (0525 718181) at £49.95 And yes, porting software from ST to Amiga is simple (as long as you are talking about data files only – you can't run ST programs on an Amiga). One way is to connect the two machines' serial ports up with an RS232 lead and use a comms program on each to send and receive data (we gave an Amiga comms program, VT100, away on issue 4's disk). If you are going to do much transferring, and you have a second Amiga drive, the program Dos-2-Dos from HB Marketing (0895 444433) lets the Amiga directly read ST disks.*

Light of dawn

I have just started buying your magazine and I am currently very impressed with it, keep up the good work.

I have recently upgraded (????) from a Ferranti PC860 to the Amiga A500 and am just beginning to find out what a very complex machine it is compared to my previous one.

Having initially been impressed with the software bundled with the Amiga I am now delving a bit deeper. The small wordprocessor 'notepad' supplied with Workbench is okay for small letters etc, but, for larger projects, something that can hold more than six pages of text is essential. On looking through the various magazines I gleaned the knowledge that there is a text program in the 'C' directory called ED, so I tried to use it as a W/P. The text I intend to write will run to some one hundred pages so I need as much free space as possible on the disk.

I therefore formatted a disk and 'installed' it. I then copied ED onto the disk, so far so good, having rebooted and started it with

PRIZE LETTER

Piracy: the case in favour?

You have mercilessly caricatured Mr Frank Doddy's letter on software piracy (issue 5, Nov 88), but he does have a point.

The attitude of those software companies is not, "How can we supply the public with quality software at an affordable price?" but how can we get the greatest possible amount of money?" I do not expect them to work for charity, but they are being exceedingly greedy.

I want to give a few examples.

1. Atari are offering £450-worth of software in their 'super pack'. This costs £399 . A 520ST alone costs £299. Hence the real worth of that software has to be less than £100!

2. I recently obtained two excellent Public Domain programs for initialising my ST. One is configurable to give me a reset-proof RAM disk, a printer spooler, and a memory tester. The other allows me to select my accessories and set the time and date. The two programs cost about 50p each. (Of course the PD library charges around £3 but that includes a floppy and many other programs on that floppy.) Now, my Silica Shop catalogue tells me that Kuma are selling a RAM-disk for £29.95! It is not even resettable....

3. A commercial C compiler costs £100. I am not nuts, so I got my C compiler from a PD library together with a useful C-library that even permits me to use some GEM functions. The commercial one is much better of course, but can it be 100 times better?

I think that ethics are universal. If a software company is asking £30 for a program that it produces at £3, then it is no less theft than piracy is. No amount of wingeing is going to change that fact.

If I had the skill to steal a commercial C-compiler, I would have done so. If I had the skill to write one, I would have done that, too. Then I would have put it in PD just to prevent the commercial pirates from making money. Unfortunately, I have neither skill yet.

A Tekelioglu
London

■ *Of course we all know piracy is the most totally evil crime in the universe – worse even than watching* Neighbours, *but there is something in what you say.*

The Atari pack is old software that has reached the end of its shelf life. It's a traditional advertiser's trick to say it is 'worth £450' – nobody would pay full price for them now, good though they are.

The case of PD versus commercial software is simple: if you are technically clever enough to battle through often unhelpful documentation, and are prepared to risk using untested software, then good luck to you. If you are running a business where you have to know that software you use is robust, and that should there be a problem there is somebody you can ring up to get help from, then it's worth paying the extra for peace of mind.

Your breakdown of a game's costs is a bit adrift, I think. The material costs may be £3 for a disk and a case, but the software house may well have paid the programmer many thousand pounds if he's a big name, and don't forget that the shop gets half the money. Some games take a year or more to write – if you want to give away a year of your time for free then fine – we'll look forward to putting your C Compiler on a future cover disk.

Even though some companies are trying it on, we've got to change things by working within the law, not by breaking it. As sales of ST and Amiga soar, prices will come down because the economies of mass production will allow budget titles to be marketed. Until then, we've all got to rely on software houses' good will.

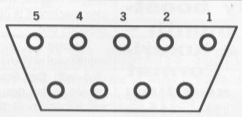
Mouse problems solved

With reference to ST/Amiga Format issue 6 (page 111), the letter from Terry-no-address, 'Dog eat Mouse world'.

As Terry doesn't say in his letter whether his mouse was for an ST or an Amiga we have included both printouts together with the correct colour/number he needs to know. Diagrams show the end of 9 pin plug as you would look at it.

This should help him and others – it's a question we are often asked.

1066 Software
Hastings, E. Sussex



ST (520/1040)	Amiga (500)
1=Brown	1=Brown
2=Orange	2=Red
3=Green	3=Orange
4=Blue	4=Yellow
5=(blank)	5=(blank)
6=Yellow	6=Blue
7=Red	7=Purple
8=Black	8=White
9=White	9=Black

the command `ED PROJECT`. I am presented with my wordprocessor and using all the available ED commands I have completed a very large file – great.

Now this is where I need help: how do I print it out?

I have tried going back to CLI and typing `COPY PROJECT TO PRT:`, but the response I get is "Can't open PRT: – Error code 205"

OK, so we all know the error code means that PRT: is not on my disk, but, on running DIR OPT A on my Workbench disk I can't find a file called PRT, so could you tell me how to get my text to print out without swapping disks around, ie I want PRT: on my Ed disk.

Secondly I want to get hard copies of DIR from my Workbench disk, and have tried `DIR TO PRT:` and various other alternatives. Can you help me on this one?

Thirdly, on my Ferranti PC I was able to obtain a Screen Copy to my printer by pressing [Shift] and [Print Screen] keys together. On the Amiga I see that there is a PRTSC key on the numeric keypad's [*] key – can you tell me how to get this to work.

Finally, how about putting a 'For Sale' and 'Wanted' area into your magazine, either in the printed mag or onto the disks as a text file that could be loaded by either machine ie ASCII format?

Personally I run the audio through a spare Akai amplifier and speakers. Interceptor is great at 40 Watts per channel (What... Eh... Pardon?). By the way, does the memory expansion for the A500 significantly improve the sound effects of Interceptor enough to justify purchase of extra memory?

Roger Barefoot
Glynn, Co Antrim

■ *You're a braver man than I, creating a 100 page document with ED! I'd heartily recommend buying a decent word processor. Anyway, the reason you can't print is that your boot disk needs to have a directory called DEVS with a file called PRINTER.DEVICE in it. You might as well copy the whole DEVS directory over.*

To get a printed directory listing, try `DIR >PRT:`. And there's no easy way to get a screen dump on the Amiga. You need either to scour the PD libraries, or buy Turbo Print *from George Thompson Associates (077 082 234).*

The extra half megabyte of RAM on the 500 gives you a much throatier engine sound on Interceptor – and it's worth upgrading to get access to more powerful software which needs the extra memory anyway.

Silent majority

I've never been one for writing to magazines month after month, usually because I can't find anything worth writing about, but now I have accumulated some questions so I thought I might bully myself into dropping you a line (or hundred) after digging deep for the price of a stamp. (Not easy when you've just paid a fortune, ie. £30, for the Three Stooges, which frankly wasn't worth half of it.)

Firstly my questions.

1. In the Basic Demos draw on the Extras disk there is a program called ConvertFD; what exactly is this used for, as I often write programs that use libraries and I have never needed this as all I do is copy existing libraries?
2. I recently saw an advert for the 'Entertaining Face of the Amiga' by US Gold. It included a sub-advert for Amiga *Outrun* – is it really available? Or are they just using the same technique in marketing as the very long awaited ST Outrun? If it is available, how come I've seen nothing about it in any magazine. The last I heard they hadn't got anybody to write it yet?
3. Why don't you start a disk section where devout ST or Amiga owners could show off their own demos or BASIC games?
4. What's happened to Workbench 1.3? Will 1.2 users be able to use just the 1.3 disk software, or will we have to buy the ROM as well?

There you are that's the lot. Your magazine scores top marks with me, it looks good, is well written and is packed with good, interesting material. Mind you all that hardly accounts for the price! I know disks are expensive, but you could almost buy a drive for that! (with a little exaggeration).

Simon Robbins
Spalding, Lincs

■ *1. As you may know, the BasicDemos drawer already contains three library files (graphics, dos and exec.bmaps) which for most programs are adequate. These three library files will not give you full access to all the ROM Kernel routines which is where ConvertFD comes in. ConvertFD is a program that converts the library files within the `FD1.2` folder on your Extras disk to a form useable by AmigaBASIC. For example, if you wanted to access any routines within the Intuition library, you would have to convert the associated `.fd` file using ConvertFD.*
2. Outrun is available for the Amiga now, but we think it's pretty naff which is why we haven't reviewed it. Check out Turbo Cup and RAC Rally Sim reviewed this month instead.
3. We haven't got enough disk space for demos if we're going to pack loads of goodies on each month too.
4. Back in March, WB1.3 was 'due in early Summer'. In June it was 'due very soon'. In September it was 'almost ready'. In November it was 'imminent'. Your guess is as good as ours. You will only need the ROMs if you want to be able to autoboot from a hard disk, otherwise the new Workbench boot disk is all you need.

Are you there?

I'm following your Learn BASIC course at the moment, and after loading in your Power BASIC demo version from issue 2 went to load the tutorial files form cover disk 4. When I selected 'Load' nothing came up in the disk directory. Is my demo version of Power BASIC faulty? Could you please tell me how to load it in.

David McQuiston
Ballymoney, Co. Antrim

■ *The 'Load' menu of the special Power BASIC demo on our cover disk will only list files ending in .BA. To check whether the demos are on your disk, just go to the ordinary GEM desktop and click open the LEARNBS folder. You should see one .BA file there – if not, your disk is damaged.*

Pooh-poohing it

I am having problems in getting to know the AmigaDOS. Your articles have have helped a little, but I think I need a better manual. Can you recommend one?

With your October issue you provided a very good jigsaw puzzle IFF2PCS, and in addition you suggested that any low resolution IFF picture could be incorporated. I followed your instructions thinking I would be able to use the pictures supplied with an earlier disk VILBM, September issue. Can it be done? If so, a very simple step-by-step set of instructions would not only gain my gratitude but also that of my daughter (5) who loves the Pooh collage and has adopted the IFF2PCS jigsaw game as her own.

P C Neal
London

■ *The definitive guide to*

AmigaDOS is The AmigaDOS Manual *from Bantam Books. It costs about £23, but a new book which looks a better bet is* AmigaDOS Inside & Out, *published by Abacus and available from Computer Manuals (021 706 6000) This covers the new commands in Workbench 1.3 as well. UK price will be £18.45.*

The reason that you can't get IFF2PCS to work with the Pooh Collage is that you must only use low resolution (320x200 pixel) pictures, and Pooh is high resolution interlaced (640x400 pixels). There are utilities to convert images from one format to another – try Butcher 2 *from The Amiga Centre Scotland.*

Colour bar

I own an Atari 520ST, recently upgraded to 1040 status with a RAM kit. I have borrowed a NEC CP6 colour printer from a friend, and was hoping to get some good pictures printed. However, I seem to have a problem; although I am using a colour printer I can only get it to print in black and white. I am drawing with Degas Elite and have tried all the drivers on the disk, the closest I get to colour results is with the JX80C driver (I have enclosed a printout made with it), but it is not perfect. I have been told that I need a proper NEC CP6 driver but cannot find a stockist. I have tried the shop where I bought the computer and many more in my area, to no avail. *Please* can you help?

Mark Mountford
Stoke-on-Trent

■ *We've never heard of the CP6, sorry. The first thing you ought to do is ring NEC and find out if the CP6 can emulate any of the printers on Degas's list. There is often a tiny panel of switches ('DIP' switches) somewhere on a printer to do something like switching Epson-compatibility on or off.*

Failing this, Electronic Arts (who wrote Degas) say that there are a selection of other printer drivers on an American bulletin board called CompuServe in the Atari 16-Bit Special Interest Group. Maybe a friend with a modem could get one for you. Lastly, the Degas manual explains how to write your own printer driver, on pages 78-80 – find a friendly machine code programmer!

Seeing the light

I recently decided to purchase an Atari ST for Christmas and so I bought the November issue of ST Amiga Format, to find it an excellent magazine. However, there are a number of things I am behind on, especially the Virus killer program mentioned on page 72. I would therefore be grateful if you could print the prices of back issues, numbers 1-4.

As I won't have my ST until Christmas, and I would like to use it my TV/Monitor, I would be most grateful if you could tell me the RGB pin numbers for the ST, so I can have a monitor lead made up. Also, with regards to printer leads, does the ST have serial or parallel connections?

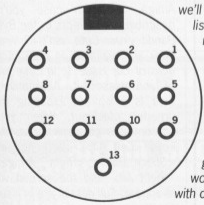
If I may make a suggestion, in your games reviews section, *Screenplay*, the addition of a ST/Amiga software chart would prove useful, or perhaps a readers' chart showing the games that are being played, not just bought.

In the advertisements in your magazine, many companies offer both SS and DS discs. Are these two types compatible with the ST? Is having one kind an advantage over having another?

Damien Dougan
Belfast

■ *You'll find the back issues listed in the special offers pages this month – 86-89.*

The monitor connections are in the ST manual – in case you've lost yours, on the diagram (which is drawn as you look at the socket on the back of the ST), the important pins to you are 1=Audio out, 6=Green, 7=Red, 9=Horizontal sync, 10=Blue, 12=Vertical sync, 13=Ground.



Your readers chart is a good idea – we'll think about it. We don't publish Gallup charts because in a monthly magazine the info is usually out of date by the time we're on sale.

Stick to buying DS disks – SS means 'Single sided', DS means 'Double sided'. SS disks are fine on old 520STs, which only have single sided drives, but they won't work reliably on new STs with double sided drives.

Dungeon slave

I am the owner of a 520STFM (old style) and have a query. After months and months and months etc of fighting, fireballing and conjuring on *Dungeon Master*, I have come to a complete stop on level 8. How do I get out of the stairs that just go up and down and get to level 9? Can someone proffer info please? Also Ed Penman's wonderful *DM Cheat Routine* from disk 5 only works on levels 1 and 2. Is this intentional, as on the info it says DEMO COPY? If it is can I get hold of the full routine for all levels?

A Doult
Burnley

■ *Yes, the DM cheat is only a demo of a fuller version. That's being marketed by SOFTEX and is available from Software Express (021 328 3585).*

Corrupt practices

After reading the letters page in issue 3 of your amazing magazine I saw that you helped Karen Smith when she couldn't do something in *Hitchhikers Guide to the Galaxy*, and I wondered if you could me with *Corruption*.

Please could you tell me where to find the casino chips so I can get past the bouncer behind the wooden door in the back yard behind the kitchen. I have been trying for months, you are my only help.

David Butterworth
Worcester

■ *Well now, we wouldn't want this to become a habit, but as it's you... try looking in the safe in David's office.*

24-pin question

Regarding the compatibility of the ST 1040 with 24 Pin Printers. I have an Atari 1040 STFM computer and an Amstrad DMP 3160 printer (9 pin). My question is simply this: would a 24 pin printer, such as the Star LC24-10 or the Amstrad LQ 3500, be compatible with my Atari computer and would the 24 pins function thus producing a better quality of print?

R P Moss
Forres, Morayshire

■ *I love easy ones. Yes is the answer to both questions.*

Sampled delights

Firstly, I'd like to say how much I enjoy Format. I find the balance of articles between the two machines about right, although I do get a little depressed about the Amiga's 4000-odd colour palette, and the art packages that support it, whereas my more humble ST 520STFM double sided drive appears less well served. Who knows? Maybe I'll win an Amiga in one of the many competitions that go around (where is that blessed entry form...)

A question. I'm sorry but I find I keep getting lost between sequencers and samplers etc. Could I just say what it is I think I want to do, and ask your advice for hardware and software that is a) compatible b) does what I want and c) means I don't have to remortgage the house.

I can read music; I learnt on a wind instrument, and so my proficiency with a keyboard is limited to say the least, although I do know where the notes are. What I think I want is a software package, which will enable me to enter notes onto the stave directly (step-time?) and then play them out simultaneously through the hardware/music keyboard (poly-

phonic?) While I would love to achieve an orchestral sound, an eight-piece band sound would be acceptable, assuming that the keyboard has the necessary voices.

In terms of keyboards I wonder if you would suggest a full size board (ie. eight octaves) a cut down board (ie. piano sized keys but only 4-5 octaves) and a small board (miniature keys and 4-5 octave range).

If you could also give an indication of what I would have to do to make a recording of said output in one go rather than using an eight-track recorder, which I don't have access to, I would be most grateful. (I don't ask for much, do I?)

Graham Nash
Romford

■ *You're looking for a fairly standard setup. For a budget ST system we'd recommend the following:* Music Studio ST *from Activision, coupled with any MIDI keyboard of your choice. Casio make good cheap models (the CZ101), or alternatively the Yamaha DX series is proving increasingly popular. As to recording it, as long as your MIDI keyboard has a stereo recording jack, you can just send the lot straight to a tape deck. The only virtue of an 8-track recorder is that you can adjust the relative levels of each element after you've recorded it... but if it's on disk anyway, your ST should be able to do that. That's the beauty of MIDI.*

Too clever by half

Scenario: son in Africa, with an Amiga, two small boys and a delightful and necessarily very patient wife. Father (therefore Grandfather) in England, with an Amiga, dog, cat, and d.a.n.v.p.w.

Sequence 1: Grandfather uses Amiga's FED to devise a code vocabulary of weird shapes and jumbled protoletters, and sends disks with exciting (?) spy missives on Notepad to grandsons, hoping to fox and earn much needed respect from the computer generation.

Sequence 2: Grandfather receives replies in totally unintelligible gobbledegook, and seriously doubts the literacy of the next generation, fearing the irreversible effects of computer culture!

Sequence 3: Grandfather is seen secretly writing a short note to himself, before swallowing it.

Sequence 4: At the post-mortem examination the note is discovered. Eye witness reports confirm that the wording on the note was, "Load another font, dummy!"

R.G.B.
Buxted, E. Sussex

■ ✱✱✿▼ ▼✱✱ ✿◆✱✱ ✿❑✱ ❙❑◆ ❑■ ✿✿❑◆▼???

A hard life

I am 14 and I have £15 a month. Assuming I spend a fiver on things like magazines, Coke etc., I have about one game per two months spending allowance. That is also assuming that I'm not trying to save for a compiler (which I am) and I'm not trying to buy a calculator or whatever.

If you give a game an excellent review for the Amiga, I do not rush out to buy it 'cos when I consult my electronic bank balance I discover an absence of dosh. What am I left to do? Drool over screen shots as I search the streets for that extra tenner picking up all the little 1p's that have been urinated on by dogs?

If however, I accept a *copy*, I won't have to do that will I? No, and as I could not have bought the game anyway I haven't stolen any money from the software house.

I agree that people with a lot of money shouldn't pirate software as they *are* stealing, but how many people who like games have fifty quid a month to spend on them?

David Turner
Leamington Spa

■ *Well, yes. It's also easier to go round a supermarket and just nick stuff rather than paying for it, isn't it? And when you do have £50 a month to spend, you'll still be saying that games cost too much because you want four a month not just one. No-one ever has enough money in life – but that's no reason to steal.*

PRIZE LETTER

68010 thumbs down

Concerning the ST 68010 upgrade letter in issue 6. I put one in a 520ST, but although it worked perfectly with one arcade game, *Airball*, it would not work with programs that use the Atari's O/S.

The problem lies in the way the Atari's O/S is written and the difference between the way the 68000 and the 68010 and upwards process exceptions such as TRAPS. The 68000 only puts the PC and SR on the SSP, whereas the 68010, 68012,68020 and 68030 put a lot more information on the SSP which means it should work if you only call TRAPS from within USER MODE. The bad news is that when the ST is initialising itself during a reset it crashes as it accesses a TRAP when in *supervisor mode*.

I actually spent a week trying to patch the O/S by loading a boot sector on reset which revectored the TRAPs to RAM, and although I consider myself quite a competent programmer, I'm afraid it was too time consuming to get it working properly. As a result, we have decided to opt for a 16 MHz MC68000 which should give between 25% (minimum) and 90% (maximum) speed gain over the 8 MHz 68000 whereas there would only be approx 10% gain with a 68010. Now, the *really* bad news is that the 16 MHz 68000 costs over £100 if you buy them one off but under £50 if you buy them 25 off. If anybody is interested in this upgrade then send me an SAE or ring 01-326 1672.

Martin Taylor
Flat D, 311 Brixton Road, London SW9 7BU

■ *Fitting a faster 68000 sounds a much better bet than using a 68010 and risking software incompatibility. We'd be very interested to hear your final conclusions when you do get your Turbo ST going – I suspect that a 90% speed increase is optimistic give the limits on memory access times.*

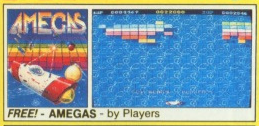
Bandits high!

Just some quick advice. If your monitor turns off suddenly, check your disks for the virus because there is virus that appears to turn off your machine. In fact it just stops all display signals going to the monitor.

Dan
Newcastle Upon Tyne

■ *I presume you've got an Amiga, in which case you're describing the effects of the Byte Bandit virus. Cute, isn't it? Virus killer are available on back numbers of our issue 1, in case any of you missed it. Alternatively, their is a way of escaping the dreaded black-out. When your screen does go blank, press the keys <Left Alt> <Left Amiga> <Space Bar> <Right Amiga> <Right Alt> and the screen will re-appear. Full details are in issue 6's Workbench section.*

FREE! TENSTAR PACK WORTH OVER £229!



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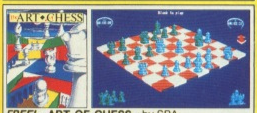

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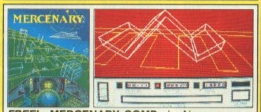

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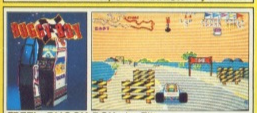

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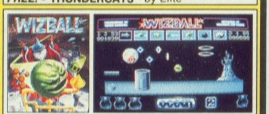

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Do you already own a computer
If so, which one do you own? .....

For Fax sake

Favourite press release of the month has to be the one for Microlink's new Fax service. Subscribers to the on-line comms network can now send text files to any Fax station around the country, and to prove the point the press release was sent to us in just that manner. Now we're sure that 99% of all faxes get though perfectly alright, but for some reason the first two paragraphs seem to have been – how shall we say? – rather viciously edited en route.

For all enquiries about subscribing to Microlink's service, please contact: Microlink, Eu[[^M^J H%%!se, ((;@@#t#kport.

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Enter Easy Fax
Courtesy of MicroLink

In the wake of complaints about a new fax service on Telecom Gold, experts at
MicroLink have come up with an instant answer for their own su

The problem with Mailfax, which Telecom Gold introduced on November 1 -
allowing people with a home or business computer to communicate with

As a result, some 300 per cent of all messages during the first few days were
aborted because they'd been sent to invalid numbers.
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Unbelievable graphics?

Could the advertising standards standards authority be interested in Commodore's latest ads for the Amiga? Now no-one doubts that the machine's graphics capabilities are amazing, but Amiga-owners would tend towards the word 'unbelievable' for the TV spectacular. As the camera swoops in to the screen, the quality and speed of movement of the graphics shown would need a lot of pretty costly animation kit to produce. Well, maybe there was an Amiga in the studio at the time...

Taxi!

If any London taxi drivers are reading this, GET LOST!!! As the Format team made the long trek up from Bath to the Atari show, we got to Paddington station and hailed a cab to get to Alexandra Palace with all alacrity. First driver: "Ally Pally... Sorry, don't know the way, mate." Second driver: "Never heard of it." Third driver: "Bit out of the way isn't it?" We asked *five* drivers, and none would go near it. Have Commodore bribed them all to spike the Atari show? Shouldn't we be told?

■ ***A quick lesson to all Taxi drivers – you'll find Alexandra Palace on page 29 of the A-Z.***

NEXT MONTH

Didn't you get a subscription to ST AMIGA FORMAT for Christmas? Well, better luck next year. In the meantime, Issue 8 is on sale

THURSDAY 19th JANUARY

Make sure you aren't missing out on these fantastic features:

■ **BUILD AN ST SPEECH SYNTH – Another superb ST Amiga Format hardware project gives your ST an Amiga-beating speech synthesizer. Have your micro talk to you.**

■ **BAK PAK – Master games programmer Steve 'Fright Night' Bak talks about his work on ST and Amiga. Which does *he* prefer?**

■ **STATESIDE VIEW – What's the *truth* about the ST and Amiga in the States? Which is *really* winning? Find out who's doing what.**

■ **SCREEN SECRETS – A programmer's guide to handling the ST and Amiga screen displays. Learn to make those pixels panic!**

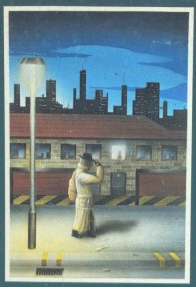
■ **SIZZLING SOFTWARE – reviews of Protext version 4 on Amiga *and* ST, Sculpt 4D, Deluxe Print II and Eagle's ST Touch Screen lead the way. On the games scene, *Purple Saturn Day* is the phenomenal sequel to Captain Blood... can you wait? We can't.**

(Contents subject to the whims of postal strikes, nurses strikes, water-workers' strikes or extended Christmas lunch breaks.)

Superheroes, Inc.

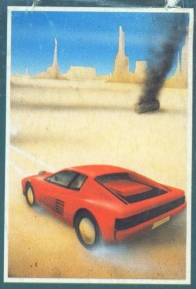
by Sarkar

A CLANDESTINE MEETING OF THE TOP SOFTWARE HOUSES...
GENTLEMEN... ATARI IS MOBILIZING A SOFT-WARE ASSAULT WITH FOUR NEW LABELS.
WE CANNOT ALLOW SUCH DAMAGING COMPETITION
WE MUST... ELIMINATE JACK TRAMIEL...
...A.K.A. ATARI WARRIOR!
I HAVE PROCURED THE SERVICES OF A PROFESSIONAL PSYCHOPATH...
I'M HOOKED!
THE HACKER!
HUR HUR HOOAR!
THE ZERO MATRIX BAR...
I KNOWN YOU'D BE HERE!
SO YER VIEW SOFTWARE LABELS ARE GONNA RE-LEASE AMIGA PRODUCTS, HUH?
MAKE A PEARY FROM THE OPERATION, HUH?
I'M GONNA KILL YA!
SUDDENLY...
WHA?
HEY, YOU!
HUH?
CLANG!
HACKER KILL ATARI WARRIOR!!
HAAR!!
GET LOST, JERK!
I'M GONNA KILL 'IM!
SEE YOU!
HACKER GONNA KILL HIM!
BEAT MY RATE, BOZO!
HAAR!!
HACKER KILL COMMODORE FANS!
HACKER, SO YER CHOOSE - SIMES!
I'LL HAVE YA EXT THAT A@#%^&E!
WHIZZ POW! SMACK!
TOO DAMN NOISY IN HERE...
SARKAR '88

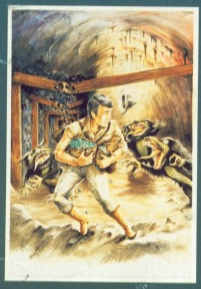


ROBBEARY
Bertie, an agile and clever bear has targeted a famous 24 floors store for his last and most daring ROBBERY. With no alarms or visible guards and fabulous treasures, yet it has been avoided like the plague by the criminal fraternity. Bertie soon discovers why?
AMIGA £19.95

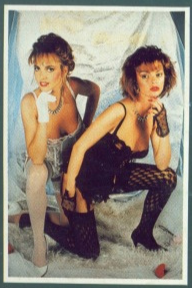
HIGHWAY HAWKS
Grand Prix driving skills is essential to negotiate the crowded highway at speed. Obliterate the assassins cars and the ones that get in your way but keep the tiger in your tank fed, the engine cool and the tyres and steering intact. Acquisition of faster cars and lethal weaponary depends on your driving and trading skills.
AMIGA £19.95 (2 DISCS)



EMERALD MINE
A giant arcade adventure which has received rave reviews. Each level has its own unique solution and requires ingenuity and dexterity to complete. One player or two players TEAM action for added enjoyment.
AMIGA £14.95
CBM64-PLUS 4 £7.95 (D) £9.95

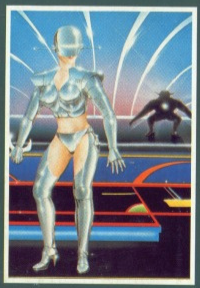


MANIAX
Maniax relentlessly pursued by the creature undertakes to clear the thick fog engulfing the world capitals. An addictive game requiring quick thinking and action.
AMIGA-ST-IBM £19.95
CBM64-PLUS 4 £7.95 (D) £9.95

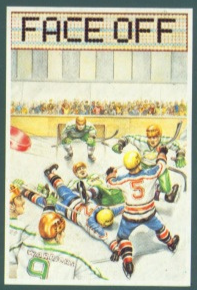


STRIP POKER II PLUS
A sizzling evening with Sam & Donna
AMIGA-ST-IBM-ARCH. £14.95
SP-AMS-MSX-BBC-ELECTRON
CBM64-PLUS 4 £7.95

QUANTOX
Progress through 24 levels of this fast and furious action. Lightning responses are secondary to the strategic choices between better weaponry or better defence.
AMIGA £14.95



FACE OFF
Experience the sheer pace and exhilaration of ICE HOCKEY. Be prepared for the body checks, fouls and rough play. League competition, 1 or 2 player option.
AMIGA-ST-IBM £14.95



STRIP POKER II PLUS DATA DISCS
Requires Strip Poker II Plus disc to load
Disc 1 Beverly & Dawn
Disc 2 Lee & Roy
Disc 3 Suzanne & Bianca
Disc 4 Rachel & Kim
AMIGA-ST £9.95

DAWN

MICRO TEXT **MICRO BASE**
Ideal for home and business use. Menu driven to enable a novice to use powerful capabilities with minimal reference to the tutorial manual.
Micro_base - a powerful data base with fast SEARCH and SORT facilities includes a very flexible label printer. Sorted files can be used by the Micro Text word Processor to send personalised letters. A boon to any Club Secretary.
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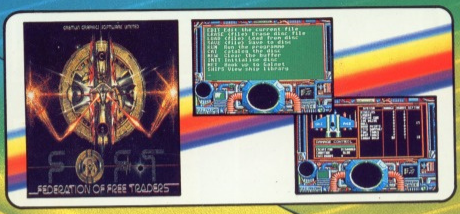

FOFT

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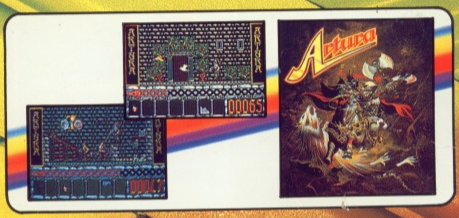

ARTURA

Race back in time to a place and a dimension where chivalry was the code of conduct. An age in which evil witches and warlocks made every day a tireless adventure. Search out your beloved Nimue and uncover a frightening journey possessed with ghouls, spiders, giant rats and fearsome soldiers of Satan.

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Only the elite pass the three phase test of the corps of the Guardian Warriors. Master your jetpak as you furiously encounter the mutant underworld. Then a chilling decision – fuse lifeforms with your vanquished foe or face your next challenge alone.

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AMIGA £19.99

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Enjoy all the fun of the mini golf course. Watch your ball roll, bounce and spin across a perilous course filled with obstacles and hazards including sandhills and metal borders. Play from one hole to the next using skill and dexterity to pot those balls.

ATARI ST £19.99
AMIGA £19.99

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GREMLIN

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